

Information and Communication Technology

Class Eight



NATIONAL CURRICULUM AND TEXTBOOK BOARD, BANGLADESH

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Information and Communication Technology

Class Eight

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Preface

The aim of secondary education is to make the learners fit for entry into higher education by flourishing their latent talents and prospects with a view to building the nation with the spirit of the Language Movement and the Liberation War. To make the learners skilled and competent citizens of the country based on the economic, social, cultural and environmental settings is also an important issue of secondary education.

The textbooks of secondary level have been written and compiled according to the revised curriculum 2012 in accordance with the aims and objectives of National Education Policy-2010. Contents and presentations of the textbooks have been selected according to the moral and humanistic values of Bengali tradition and culture and the spirit of Liberation War 1971 ensuring equal dignity for all irrespective of caste and creed of different religions and sex.

The present government is committed to ensure the successful implementation of Vision 2021. Honorable Prime Minister, Government of the People's Republic of Bangladesh, Sheikh Hasina expressed her firm determination to make the country free from illiteracy and instructed the concerned authority to give free textbooks to every student of the country. National Curriculum and Textbook Board started to distribute textbooks free of cost since 2010 according to her instruction.

The government has been working hard to make the life of the people of Bangladesh easy, comfortable and cheerful by implementing the Digital Bangladesh using information and communication technology based education. So Information and Communication Technology subject has been made compulsory from class VI to XII in the National Education Policy. To give the purpose forward the curriculum and textbook have been developed. We hope this textbook will impart information and communication technology literacy to the students and develop in them a keen interest that will play an effective role in making Digital Bangladesh.

I thank sincerely all for their intellectual labor who were involved in the process of revision, writing, editing, art and design of the textbook.

Prof. Narayan Chandra Saha

Chairman

National Curriculum and Textbook Board, Bangladesh.

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First Chapter

The Importance of Information & Communication Technology



After reading this chapter, we will be able to :

1. learn to explain the job opportunities in the field of information and communication technology;
2. explain the role of information and communication technology in communication;
3. explain the advantages of information and communication technology in trade and business;
4. explain the importance of information and communication technology in government activities;
5. explain the contribution of information and communication technology to medical science;
6. explain the role of information and communication technology in the field of research;

Lesson 1:

The Importance of Information and Communication Technology

It is like Eid Day today at Nilima's residence. Her elder brother is coming home from Dhaka after a long time. They live at Bhurungamari of Kurigram, one of the districts of northern Bangladesh. Their home is near the upazilla headquarter. Zainal Mia, their father, is working in one of the countries of the Middle East. Nilima is promoted to class eight this year. She obtained scholarship in the Primary School Certificate Examination. Everyone of the village appreciates Nilima for her academic attainment as a good student. Her brother Humayun is a good student too. He was the only student from their Upazilla succeeded to get admitted in the Bangladesh University of Engineering and Technology (BUET) in that year. Now Humayun works for a non-government software company. Their grandparents stay with Nilima and her mother at home.

Knowing that Humayun is coming home, his father sent an amount of money to her mother's mobile phone account. Yesterday, her mother went to the Bazar, drew the money and did the necessary shopping. Her mother and grandmother have been cooking delicious food for him since morning. Nilima's grandfather has read in a newspaper that the circular of BCS test has been published. He became worried if Humayun comes home now, how will he apply for that?



He has been describing the story to Nilima of his submitting the job application since morning. He walked to the riverbank, travelled by a boat and again walked a long way to reach Kurigram. Getting the application typed, he posted it to the concerned authority. It was a lengthy process to complete the formalities of applying for the job.

Government of the People's Republic of Bangladesh

Bangladesh Public Service Commission

☒ Application Form for 34th BCS Examination - 2013

☒ Admit Card for 34th BCS Examination

☒ Admit Card for 33rd BCS Examination

☒ Admit Card for Non-Cadre Examination

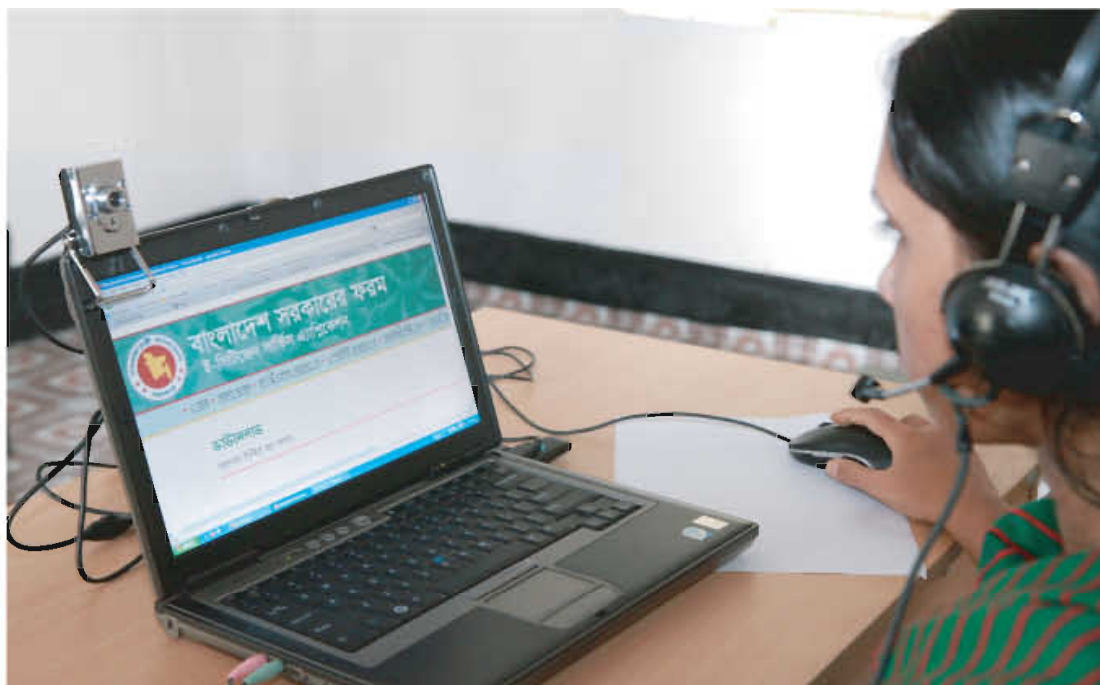
Nilima was not worried about seeing the tension of her grandfather. She

learnt from his brother last night that he would successfully apply for the

job staying at home. Nilima reminded him about the result of the Primary Education Completion Examination which he got in cell phone of her mother. Her grandfather did not have to sustain the toil of going to Kurigram for collecting the result.

Humayun, entering home, assured his grandfather that he would successfully apply for the job through his laptop and modem by the internet connection. Not only that he needs not go to the station, and stand in the queue for purchasing the return train ticket to Dhaka.

After the dinner, Humayun connected the modem to his laptop completed the application submission and took every one to a new world to show how the information and communication technology works to bring about a change everywhere.



Group Activity

Design an attractive poster delineating the importance of Information and Communication Technology in the context of Bangladesh.

Lesson 2: Information and Communication Technology in Creating and Getting Job

Remarkable changes in different levels of the society are noticed for the enormous advancement of information and communication technology. At the very beginning, it was predicted that the job opportunities would be decreased and the number of unemployed would be increased because of the automation and the application of technology, but later it was proved that some conventional job opportunities had been abolished and some trends of working had been changed, but thousands of job opportunities had been created. Research work shows that opportunities for employment have been increased along with internet connection.

Dr. Iqbal Kadir, an eminent Bengali educationist and Professor of Massachusetts Institute of Technology (MIT) has defined the growth of productivity for the successful application of information and communication technology in this way. Connectivity is Productivity, that is, productivity increases when people are integrated to technology. It results in new enterprises that create new job opportunities.

A worker becomes more skilled when information technology is applied. So, an organisation can get a big volume of works done by employing a small number of workers. We can consider the following matters as for relevant instances:

- The risky jobs of different factories can be done either by robots or by automatic machines instead of man;
- Employees are required to ensure the timely presence of workers and to keep the accounts of salaries and allowances, the automatic attendance counting machine and the use of software for keeping accounts, etc. can successfully do this job;
- It is possible to arrange the products automatically in a storehouse;
- No additional manpower is required in telephone exchange for computer operated digital system;
- It's possible to respond any queries of the consumers anytime by using automatic interactive voice technology;
- It's possible to draw cash anytime from the ATM of Banks;

The trends of different works are changing everyday due to the application of ICT. The remarkable changes are as follows:

- An employee should try to make himself skilled continuously to cope with the changing trends of the workplace for his survival;
- Many works are skillfully done by using computer staying at home. It does not matter whether you have any experience of that work, such as, editing of photography and video;

- Many people are now working staying at home, so many organisations have been transformed into virtual ones, and the number of supporting workers in these organisations has been reduced, and their working trend is changed too;
- As automatic monitoring is possible, the tendency of neglecting duty has gradually been eased off;

Creating new job sectors through information and communication technology is the main incentive of it. As a result large numbers of job opportunities are created.

Expansion of mobile phone sector in Bangladesh and the creation of new types of job

The flourishing of mobile phone sectors not only boost up national revenue but also generates a large number of job opportunities in different sectors in Bangladesh, such as:

- (a) Employment opportunity in mobile phone companies: A large number of job seekers have been provided with lucrative jobs in mobile operating companies. A mobile company is the largest technology related company in the country.
- (b) Selling, marketing and maintenance of mobile phones: A great demand of workers has been created to provide about 12 crore consumers of mobile phones with phone sets, marketing, selling and post-sale servicing;
- (c) Different mobile oriented service providers: Number of bill pay centres is increasing everyday for the payment of mobile phone bills. A consumer can receive his required service along with paying the bill from these service centres;
- (d) Creation of new sectors: With the increasing consumption of mobile phones, numerous job sectors like mobile banking have been created, so a large number of job seekers have been employed here.

Internet and the Information Technology played a vital role not only in creating jobs but also providing the job seekers. Previously, the job circulars were usually stuck up either on the notice boards of the concerned office or on the walls of the government organisations. Besides, the circulars of employment opportunity were published in the newspapers. A new kind of service called 'Jobsite' has been opened as a result of the expansion of ICT. The employment authority can publish circulars on that website. They can even publish circulars either on their own websites or on social communication site like facebook for free. So, a large quarter of job seekers can be informed instantly of the advertisement, or they can keep them registered on a website like that. As a result, the registered person can be informed either through email or through SMS as soon as a new advertisement is published.

Earning opportunities staying at home

Now-a-days, the third world countries have the opportunities to provide service for other countries staying at home for the innovation of the Internet. A large number

of organisations of different countries get their jobs like website development, maintenance, monthly salary sheet preparation, adding information on the website, software development, etc. done by the workers of other countries. It is called outsourcing. Anybody can involve himself with this kind of work if he has the Internet connection. In these cases job skill and language proficiency are required. Many websites provide these kinds of opportunities. Upwork (www.upwork.com), Freelancer (www.freelancer.com), Elance (www.elance.com) etc. are the popular websites of this kind. Nowadays, Independent professionals are engaged in self-employment in Bangladesh through these websites. The job facilities are expanding at a rapid speed through out sourcing.

Lesson 3: Communication

The whole port of Chittagong quaked terribly with the sound of explosion at 2.15 am at night on 15 August 1971. A group of naval commandos of the freedom fighters, deceiving the tight vigilance of the Pakistan army, succeeded capsizing a good number of marine vessels by exploding mines. The channel to the entrance of the port was blocked by the sunk-vessels. So, neither home nor foreign vessels could enter the port. It was one of the valiant expeditions of the liberation war.

Do you know how was the group received the command of this daring move? As there was no way to communicate them, on the freedom fighters request, on 13th August the 'Akashbani' radio played Tagore's song, 'Ami tomay joto suniyechilem gaan,' (The songs that I sang for you) sung by Pankaj Mullick. Listening to the song, which was a signal to the naval commandos, they understood that it was time to hit.

This incident may be unbelievable to you after long time of the war of independence. Now it is so easy to communicate one another, but our freedom fighters underwent a lot of troubles to make the contact.



A group of naval commandos are taking preparation with mines for operation.

We can divide the system of communication into two ways- one way and two way. When a person or an organisation communicates numerous people, it is called one-way or 'Broadcast'. Radio and television are the common examples of that system as programmes are broadcast from the stations for the people. The viewers or the listeners can not alternately communicate the broadcasting station. Nowadays, in some live programmes, the viewers have the opportunity to communicate with the performers, but out of thousands of viewers, only a few become



The online version of the world famous newspaper The New York Times. At least 3 crore people read this newspaper every month.

successful. So, in one sense, it's a 'one-way' communication system. The complexions of the programmes of radio and television have been changed remarkably due to the epoch-making development of information technology. It has been made possible to watch hundreds of channels instead of a few. It is possible to watch many television channels of the world from Bangladesh. They can instantly telecast the recent events occurred at any place of the world.

Other examples of broadcast system are newspaper and magazine. Do you know that with the passage of time, the online newspaper is increasing. It is possible to view not only on computer monitor, but also on smart mobile phone. The supplementary system of one-way broadcast is two-way communication. The best example of it is the telephone. You know that two persons can communicate simultaneously on telephone. In Bangladesh, only the solvent and influential persons could use telephone just an era ago. Now almost everyone can communicate people on mobile phone, and it has been made possible for the amazing development of information and communication technology.

A large number of people of our country have been contributing a lot to strengthen the economy of our country by earning wages abroad. Now their relatives can view and talk to them at the same time whenever they require. And all these have become possible due to information and communication technology.

Once the name of a person was the only identity, but now another identity has been essentially important, and it is his email address. An email address is created just by using a few letters and especial characters, and people can communicate anyone living anywhere of the world through email. Perhaps you have already known that most of the communication among people is done through email.

Another important diversity of ICT is social networking. It is one-way broadcast and two-way personal communication as well. Nowadays a person can contact with a large number of people by using this social network, and by successfully organising them, can participate in development activities.



Viewing along with talking over telephone will be made possible soon.

So you can understand that information technology, by enhancing the communication among the people of the world, has started creating a new world called virtual world where everyone keeps standing by the side of others.

Group Activity: Arrange a debate creating two teams. one for printed version and another for online version of newspaper.

Vocabulary: one-way broadcast, two-way communication, email address, social network, virtual world.

Lesson 4: Importance of Information and Communication Technology in Business

The use of Information and Communication Technology like other spheres of life has brought about a radical change in trade and business. The main objective of every business is to manufacture goods or ensure service by the quickest possible time and minimum investment, and to market fast. Information and Communication Technology plays a vital role in collecting the raw materials, managing the workers involved in production, developing their skills, managing production, marketing and making profit.

Usually various facilities are obtained by the application of ICT. Besides, ICT reduces costing. A huge volume of work is done in a short time by using upgraded technology. As a result, the businessmen increase profit margin by reducing production cost. There are many ways to reduce cost:

1. **Controlling stock:** Usually a big amount is expended for stocking products. Stock should be controlled with the demand of the market. The current information of requisite stock can be known by using specialised software.
2. **Production management:** Production management can be developed by the application of ICT. Making production system automatic by using ICT controlled machineries; more production is possible in less time. Besides use of ICT in labour management brings dynamism in production.
3. **Faster mode of communication:** The main devices of Information and Communication Technology like mobile phone, the internet, satellite, etc. have made the mode of communication faster.
 - **Mobile Phone:** Oral communication is possible from any place by mobile phone. So, a businessman can run his business either moving or staying at home. It is possible to contact numerous people at a time by using the conference feature of the mobile phone that allows to see other people also As a result, work can be done faster.
 - **Fax:** Urgent texts and images can be sent through fax. It plays an important role in the countries where signatures of the sellers and buyers are mandatory in business transaction.
 - **Email:** email is very important for business communication as written

communication can be done instantly. The images of the products can be viewed too, even the link in which the opinion of the purchaser is expressed can be sent.

- **Internet:** It is possible to spread merchandise benefits over the world through internet.
 - **Intranet:** The offices of many business organisations may be situated in different locations. Intranet has made the communication among people within the same business organisation smooth
4. **Proper maintenance of accounts:** Keeping accounts properly is a very important part of business. Small traders can keep their accounts just by using spreadsheet. Besides, they can preserve the information of the consumers, workers and stock of products by using different kinds of database software. The technical use of this information can take the business ahead.
5. **Marketing:** The application of ICT has brought about a new dimension in marketing.
- **Market analysis:** It is essential to collect information of the market before marketing any new product. By using ICT the market demand of a new product, status of supply and price can be analysed quickly.
 - **Collecting information of the competitors:** Information about competitive commodities and service of competitive farms can easily be collected.
 - **Supply:** It is possible to plan supply of products in low cost either by GPS or by similar systems.
 - **Publicity:** The advertisement of products or service can be published either by minimum cost or for free in the websites, blogs and social networks.
6. **Sale management and accounts:** Electronic Point of Sale (EPOS) is such a system by which all the information of sale can be preserved, an all time monitoring advantage is also there.
7. **Payment Collection:** Using ICT the businessmen can collect the payment of sold products and directly deposit to their bank accounts. Even they can transfer the cash from the buyers' credit, debit cards or by the mobile banking.



So, it is evident that ICT helps business in different ways besides said above. This technology can play a vital role to start a new business by the businessmen.

Group Activity:

How can Information and Communication Technology bring changes in business, and in which fields? Make a list and present it.

Vocabulary: Worker management, Link, Marketing, Blog, Electronic Point of Sale (EPOS)

Lesson 5: The Application of Information and Communication Technology in Government Activities

Government is the most important part of a state. The government of every country tries to create for its citizen employment opportunities that are creative and takes measures for poverty alleviation. The usual activities of the government is to enact laws and regulations, and their proper implementation, through the different ministries, directorates and departments and finally representing the country properly in the international arena. The government, by imposing taxes and custom duties internally and collecting loans and donations from foreign countries, implements the agendas. Non-government organisations or professionals can be appointed if necessary. The important application of information and communication technology is noticed almost in all the activities of government. Some are mentioned below:



- (a) **Publishing Government Circulars:** All the notices, tenders, quotations, circulars and different types of orders of the government were either hung on the notice board of the concerning department or published in the newspapers before the innovation of the Internet. So, the general people could not know the rules and regulations and the directives of the government. Now people get all the information through websites or portals. The official portal of the government of Bangladesh is www.bangladesh.gov.bd

- (b) **Enacting laws and regulations or amendments:** One of the regular activities of the government is to enact new laws and regulations and amend the old ones. The concerned department can collect public opinion through the Internet. Besides, the quarter that is not accustomed to the Internet can send opinion through the call centres.
- (c) **Communicating Important Events and Informing of Memorable Days:** The government can send messages regarding any event directly to the people through mobile phone. At least about 12 crore people use mobile phone. Any important government announcement can directly be sent to the mobile phone users through short message service (SMS).
- (d) **Government Service on the Doorstep:** The most innovative and technical application of ICT in government activities is to bring the service on the doorsteps of the citizens. The essential services to the citizens can be imparted through mobile phone, radio, television and the Internet. In the developed countries, people get the passport, deposit the income tax, get admission into universities, and pay to the government treasury instantly staying at home. In our country, we also get some service very easily. Those are as follows:
 - **e-settlement Records:** Previously, people were harassed while collecting settlement records of land, but now they can easily collect the records from e-service centres established in 64 districts of the country. A person can apply through online to have the duplicates or settlement records or attested copies very easily. Again, while receiving the services, the records become digitized, so getting information in future becomes easier.
 - **e-book:** An e-book platform has been opened to download all the text books easily from the website(www.ebook.gov.bd). Here textbooks of different usess and different supporting books are kept on this website.
 - **e-permit:** The approval of sugar-mill authority to supply sugar cane has been digitized, and the farmers get their permit for supply through mobile phone. As a result, they have got rid of harassment and ensured the supply as well.
 - **Results of Public Examinations:** Now the results of all the public examinations are being published through online and mobile phone.
 - **e-healthcare:** Telemedicine service centres have been set up in many places of the country to provide the healthcare to the people. Besides, complaints against the management of government hospitals can be lodged to the concerned authority. As a result a positive change is taken place in heathcare service.

- **Online Income tax Return Submission:** The income tax payers can assess their income tax and submit the return staying at home.
- **Money Transfer:** Money can be transferred instantly from one place to another through postal cash card, mobile banking, electronic money transfer system, etc. Besides, easy and instant cash transfer is possible through the Internet and online banking system.
- **Utility Bill Payment:** People would undergo troubles while paying the bills of electricity, water and gas previously, but now they can pay these utility bills through mobile phones or online.
- **Transport:** Now we can easily collect train bus or air tickets through online or mobile phones.
- **Online Registration:** The automation of the Registrar of Joint Stock Company is an example of the standardization of government service by the application of ICT is shown below.

When a firm or company is formed, it should be registered with a government organisation. The Registrar of Joint Stock Companies and Firms is an office of this kind. Once a disorderly queue, untidy crowds of people, cruel treatment of the middlemen, etc. were usual features of everyday on the office premises, but the total scenario has been changed for the application of ICT. Now requisite works are done from the website of the Registrar of Joint Stock Company and Firms (www.roc.gov.bd). A comparative study of some works is presented below:

Name of Works	Duration (Past)	Duration (Present)
Transfer Certificate	Minimum 7 days	30 mins
Registration	Minimum 30 days	4 days
Payment of Fees	Standing in the queue since dawn	Through Bank Deposit
Physical Appearance	Minimum 6 times	None

Group Activity:

Make a list with your friends of the government activities through the application of ICT in your locality.

Vocabulary: SMS, e-settlement record, e-permit, Joint Stock Company

Lesson 6: Healthcare

One of the remarkable changes brought about by the information technology is healthcare. Once, the doctors or the quacks would try to treat the patients observing their symptoms. Now the situation has been changed. A doctor, before prescribing any medicine, examines the patient and perfectly diagnoses the disease. Even the information can be preserved in database and can be recollected for future treatment. The doctors need not rely only on prediction to advise the patient any medicine nowadays. Using ICT doctors can easily select and prescribe medicine. It is not only possible to analyse the diagnostic reports of the patients, but also innovate new healthcare machineries, and that has started in use. The information collected by these machineries is processed perfectly. Now staying at home, a man can instantly do the work which was impossible to do earlier.



A modern telemedicine centre ready for neurosurgery

The number of physicians in our country is not sufficient. Very often, it is found that experienced doctors are not available in shanty towns and villages. In future, healthcare facilities will be available almost in all the corners of the country, but as long as we can not attain that position, information technology will help us



All the machineries used for treatment are completely information technology oriented.

with 'Telemedicine' which is a way of taking physician's advice on telephone. You will be happy hearing that some healthcare centres have come forward with telemedicine facilities. When doctor is nowhere near, a patient can take the help of telemedicine.

As we take treatment from the doctor after being sick, it is also very important to

prevent disease. So, everyone should be immunised routinely. You may boast about our achievement in reducing the child mortality rate by immunising children of our country. The programme of immunising becomes successful by using information technology as the concerned people are making plans and perfectly implementing the projects.

Treatment concerning matters that seemed to be impossible once are now easily attainable though it does not mean that we have got everything. Now we can research in a different process. The mystery of genome factor has been solved. So, a radical change is going to be achieved. Now it is possible to remove the exact cause of the disease by successfully detecting it instead of just reducing the symptoms. Not only that, now all the people take medicine of the same generic brand, but in future different

medicine will be manufactured for different people as per their need. Now surgery is done by the doctor being physically present in the operation theatre, but in future, the surgeons will do the surgery staying thousand miles away by using information technology.

Hope, you will contribute to the new world of healthcare in future.

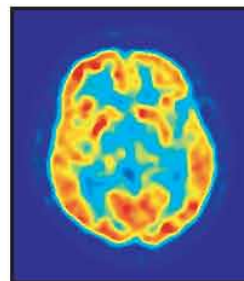
Group Activity:

Make a list of the machines being used in treatment and identify those ones that work by the support of information technology.

Vocabulary: Database, Telemedicine, Genome



Positron emission tomography machine can take three dimensional picture of the body by using information technology.



It is possible to detect the alive part of the brain from outside by CT scan

Lesson 7: Research

Our civilization is advancing due to new inventions and researches.

Perhaps you have guessed that it has not only been made possible to bring about a change in the field of research but also a new dimension has been added. Nowadays no one can think of any research work on any field like literature, art, sociology, mathematics, technology, science, etc. without computer and information technology.

To deal with information, it is a must to carryout a research work. Information should be collected, processed, analysed and in the end, represented in an orderly manner. Researchers had to do all these works manually in the past, but now they can process everything by computer. Now they need not worry about processing information. They can only concentrate on research work. You will be encouraged knowing that the researchers of our country are doing an excellent job in the fields of literature, sociology, economics, and other subjects, and all they use computer for their research.

processing. Computer and information technology play a very important role in science and technology oriented research. These research works are divided into two parts_ theoretical and practical. In theoretical research work, the researchers only concentrate on the theoretical part, and they have to rely on computer for their work. They have to match the information stored in enormous database and information bank to be certain whether the research is

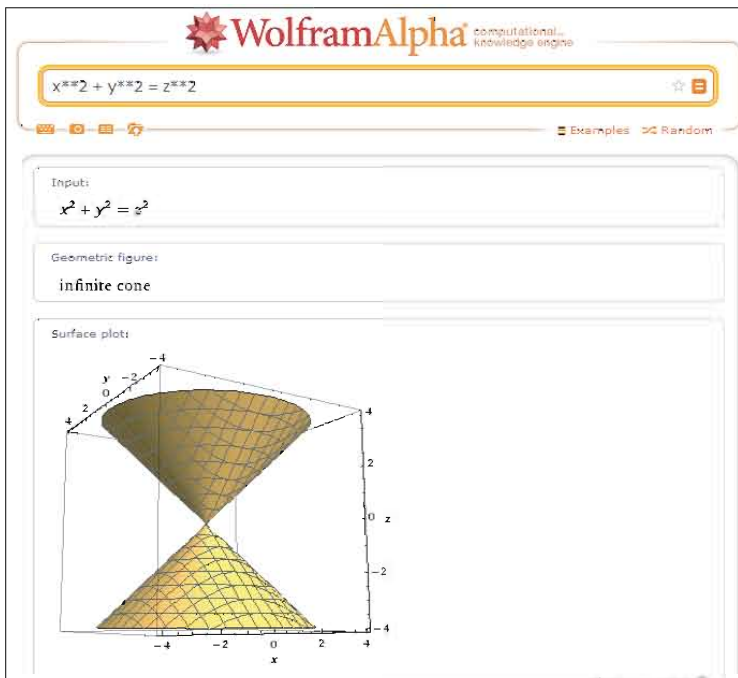
on the right track, so they use information technology.

Practical research is done in the laboratory where machineries are used for experiments. Scientists use computers to innovate, run and use machines. Computer is always used to process the data after collecting by a machine.

The size of computer is



After experimenting in the laboratory, the collected data should be processed in the computer.



smaller than the image of computer that instantly comes to our mind. Small micro controller, FPGA (Field Programmable Gate A r r a y) , P L A (Programmable Logic Array), etc. that work as computers have been innovated. Setting these devices into the machines, those can be made automatic and the whole work of the research is made easier.

As network can be used

in practical research, the scientists need not stay physically in the laboratory. They can control the whole process of research being far away from the laboratory. This belongs to virtual laboratory which can be used for practical research and experiments as is done in real laboratory. The example of such virtual labratory is www.softpedia.com. Though traditional computers are used for experiment and research, however, sometimes, the scientists use powerful computers.

Group Activity:

What will you do with 10 nail size computers if those are given to you? Write in details.

Vocabulary: Micro controller, FPGA, PLA

Sample Questions:

1. Which invention has created facilities for doing official works staying at home ?
 - a. Computer
 - b. The Internet
 - c. Mobile phone
 - d. Optical fibre
2. Which one of the following is not the website for outsourcing?
 - a. www.upwork.com
 - b. www.elancee.com
 - c. www.guru.com
 - d. www.bikroy.com
3. What was the means of communication of the following during the war of liberation in 1971?
 - a. Radio
 - b. Television
 - c. Computer
 - d. Land Phone
4. For using information and communication technology_
 - i. common people will get chance to know information;
 - ii. the quality of government service will be improved;
 - iii. participation of public in government activities will be ensured;

Which one is correct?

- a. i
- b. i & ii
- c. ii & iii.
- d. i, ii & iii

Read the text below, and answer the question nos. 5 & 6:

Suppose 50 years after today, Raihan became sick going to Banderban on a visit. He instantly contacted the physician in Dhaka who advised him to take admission to the hospital where he

successfully did the surgery by a robot surgeon.

5. Raihan would not have been sick if-
 - i. he had treated the disease by using genome technology;
 - ii. he had not gone Banderban on a visit;
 - iii. he had earlier taken the medicine suitable for his health;

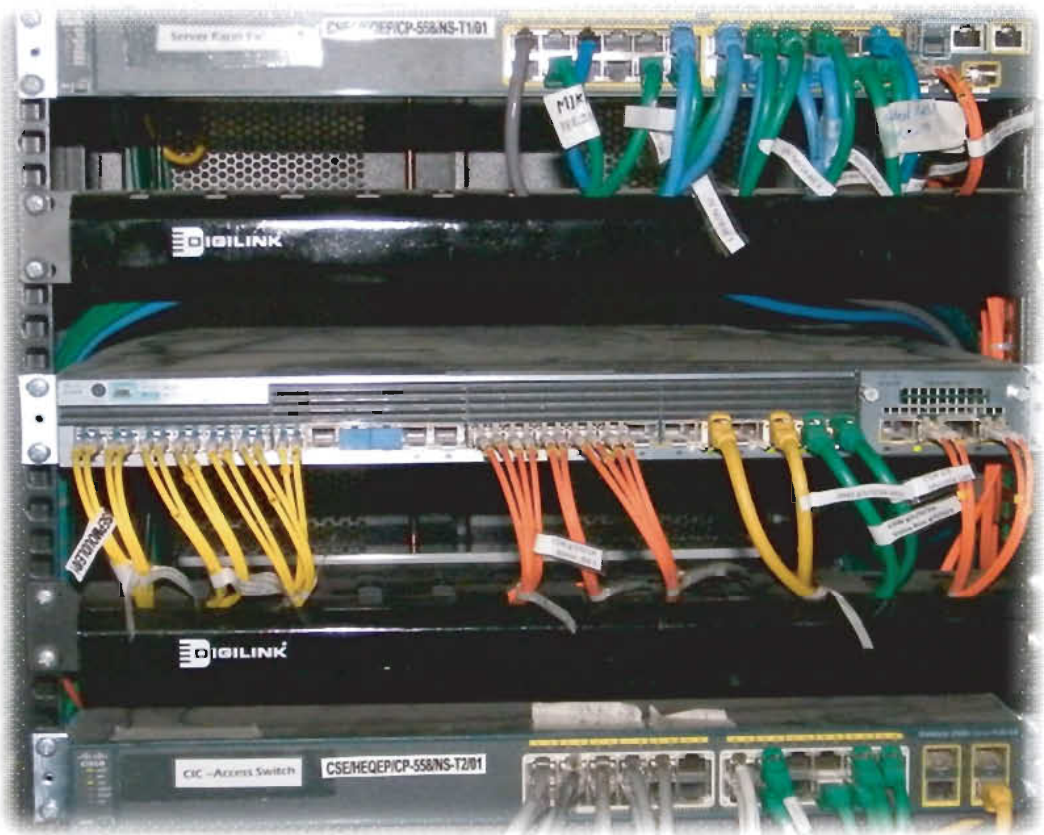
Which one is correct?

- a. i & ii
- b. i & iii
- c. ii & iii
- d. i, ii & iii

6. Which technology played the vital role in Raihan's surgery?
 - a. computer
 - b. Robot
 - c. ICT
 - d. The Internet
7. Sumon a businessman of Dhaka, would like to buy Polau rice from Dinajpur for his sister's wedding. How can he utilize ICT for this purpose?
8. How can a doctor go for a surgery of a patient being far away? Explain.
9. Involvement of people in technology adds to the production- explain..

Second Chapter

Computer Network

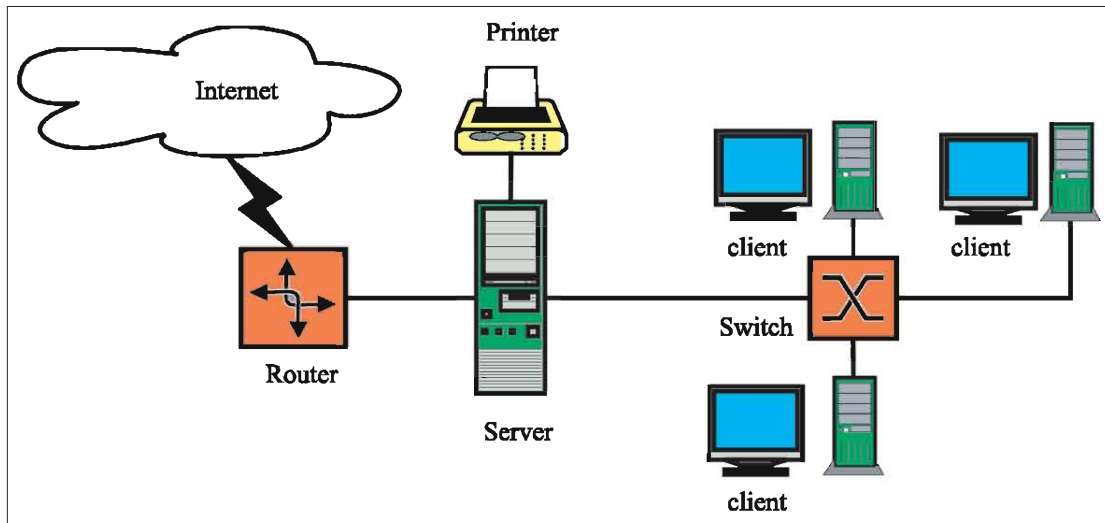


After reading this chapter, we will be able to :

1. explain the idea of computer network;
2. explain different network related devices;

Lesson 8: The Idea of Network

If two or more computers can exchange data among themselves after being connected by any communicating medium, it is called computer network. Perhaps you have understood that merely two or three computers are not connected to a real network. It connects a large number of computers. Nowadays, as long as anybody, after purchasing a computer, fails to connect it to a network, he thinks that the main purpose of its use is not rightly served because an enormous volume of work is done when information is exchanged through computer network. A user of computer can use many features of a network. He can use the resource that he does not have from the network.



A Network

We should know about some devices related to a network for having the complete idea of it.

Server: The name indicates that its work is to serve, that is, server is a strong computer that provides services to other computers connected to the network.

Client: If anybody receives service from any person, he is called the client. The meaning of client is almost similar to computer network. The computers that receive information from the server are called clients. Suppose you want to send an email from your computer by using the network, your computer will be the client. The computer of the network that provides you with the service of sending email for you is called the server, that is, email server.

Media: The thing used to connect the computers is called media. Electric cable, coaxial cable optical fibre, etc. can be the media. Computers can be connected to network without any cable or any media, for example, WiFi.

Network Adapter: A computer can not be directly connected to the network. A network interface card (NIC) should be attached with the computer to do so. The card can collect information from the media and transfer to computers for use, and alternately receiving data from computers send to the network.

Resource: The advantages offered to the clients for use are resources. If a printer and a fax machine are connected to a computer, they become resources.

If anybody uses a piece of software kept on the server is called a resource. A computer user who uses network not only receives resources but also offers the same when a piece of important information or amusing images preserved in his computers are used by others, and thus his computer will be a resource.

User: The client who uses resources from a server is called the user.

Protocol: It is mandatory to follow some rules and regulations to exchange information from one computer to another after connecting them together. The people who create network determine it earlier in which language and by following which rules and regulations they will get the inter-communication of the computers. These are called protocol. For example, for the Internet, the protocol is hypertext transfer protocol (http)



A Server

Group Activity

What are the resources necessary getting the computers of your school in network? Make a list.

Vocabulary: Server, Client, Media, Network Adapter, Resource, User, Protocol, http

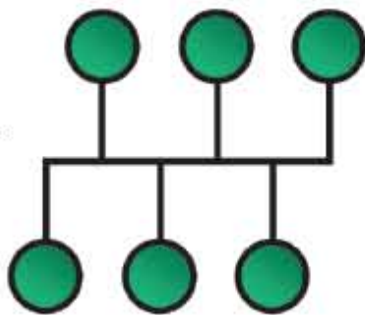
Lesson 9: Topology

You have already known that numerous computers are connected to a network so that one can communicate the other. Computer network based on the position of the connected computers can be divided into the following way :

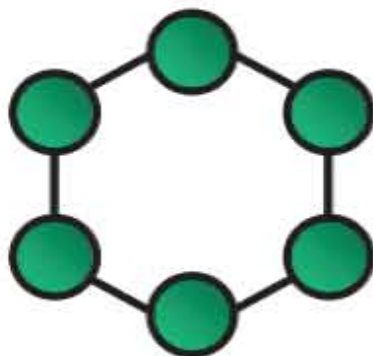
- PAN (Personal Area Network)
- LAN (Local Area Network)
- MAN (Metropolitan Area Network)
- WAN (Wide Area Network)

Pan is a personal network (where Bluetooth is used). At school, college or university the LAN is generally used. Again a MAN is a network that connects a whole city. But WAN is used to connect the whole country or the world. The computers under this Network are connected in different systems .These different systems are called topology. Let us discuss some types of topology here.

Bus Topology: All the computers are connected to a main backbone or a main line in this topology. If a computer wants to contact another computer in bus topology system, the information is shared with all the computers connected to it, but only the desired computer receives the information, and the other computers ignore it. Remember that if the bus or backbone get damaged, the whole network Collapses.



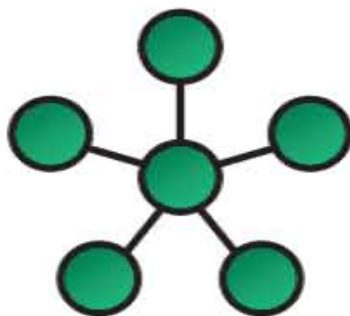
Bus Topology



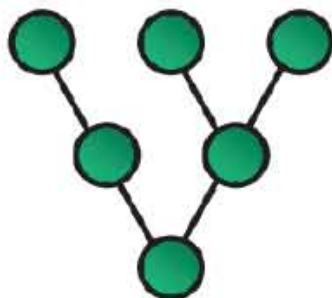
Ring Topology

Ring Topology: Ring topology is circular in shape. Watching the image, you can understand that every computer is connected to two more computers. In this topology, information or data moves from one computer to another following a particular direction, but keep in mind that in ring topology, the computers need not to be connected in a circular way. They can stay scattered, but if the circular connection always retains among all the computers, it is called ring topology. Remember that if any computer gets damaged, the whole network becomes inactive

Star Topology: If all the computers of a network are connected to a central hub/switch, it is called star topology. It is comparatively an easy topology. If anybody wants to create a network fast, he will use the star topology. If a computer gets damaged in this topology, the rest of the computers remain active, but if the central hub/switch is damaged, the total network will be inactive. It does not mean that in the star topology, the computers will be arranged in an order like a star.



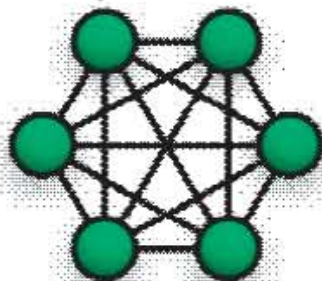
Star Topology



Tree Topology

Tree Topology: This topology looks like a tree. If you watch the image attentively, you will notice that it really resembles a tree. As branches grow out from the trunk and multiply rapidly, the same thing happens here. An amusing thing here is that numerous star topologies are integrated together to form a tree topology.

Mesh Topology: In this system of topology, computers are connected to each other through a number of ways. The computers connected here can not only receive the information but also distribute it among other computers. If all the computers of a network are directly connected to all other computers, it is called a complete mesh. An image of a complete mesh of 6 computers has been represented here.



Mesh Topology

Group Activity

Design a poster on topology in groups

Vocabulary: Bus topology, Ring topology, Star topology, Tree topology, Mesh topology, PAN, LAN, WAN.

Lesson 10: Use of Network

Man is a social being. They have been living together to face dangers collectively since the ancient time. Everyone has some responsibilities in society, and they have learnt to do their duties accordingly.

Living together socially has added a new dimension with the advancement of the society. Now the network of information and communication technology has changed our lives a lot. The works we previously did conventionally are being done in a new way.

The most important use of network is to use information effectively. Once it was a very difficult task to send a piece of information to somebody. Now it is possible to disseminate any information not only to familiar persons, but also to the whole country, even to the whole world instantly. Once, information was considered as asset. So much information as a man had so much he was powerful. The conception has been changed for the innovation of network. Now information is open to all. Different organisations preserve their information according to their own needs, but the other information is open. Both a powerful and a general person have the equal access to information.

A new trend is introduced in the world for presenting information through network.

Now information is preserved in database, but once it was preserved in papers, and people would undergo the toil of searching papers to get a piece of information. The job was unpleasant and time-consuming. Now anybody just with a stroke of finger can preserve the information in computer database and use it when needed as well.

Once bundles of papers were required to keep information in black and white, but now it is preserved in computer database. The use of papers has almost wound up. Air ticket is an example of that. Once the passengers had to carry

WikiAirlines

YOUR TICKET-ITINERARY

YOUR BOOKING NUMBER : **WXIKXI**

Flight	From	To	Aircraft	Class/Status
WK 2200	Montreal-Trudeau (YUL) 17:15 Thu May-04-2006	Frankfurt (FRA) Fri May-05-2006	05:30+1 333	Y Confirmed
WK 2496	Frankfurt (FRA) T1 Fri May-05-2006	Amsterdam (AMS) Fri May-05-2006	09:00 321	Y Confirmed
WK 2293	Munich (MUC) T2 Mon May-22-2006	Montreal-Trudeau (YUL) 17:50 Mon May-22-2006	340	Y Confirmed

Passenger Name	Ticket Number	Frequent Flyer Number	Special Needs
(1) JONES, JOHNMR.	012-3456-789012	000-123-456	Meal: VGML

Purchase Description	Price
Fare (LLXSOAR, LLXGSOAR)	CAD 558.00
Canada - Airport Improvement Fee	15.00
Canada - Security Duty	17.00
Canada - GST #1234-5678	1.05
Canada - GST #12345-678-901	1.20
Germany - Airport Security Tax	18.38
Germany - Airport Service Fees	37.76
Fuel Surcharge	161.00
Total Base Fare (per passenger)	809.39
Number of Passengers	1
TOTAL FARE	CAD 809.39

Ticket is non-endorsable, non-refundable
Changes allowed, subject to availability,
no later than 2 hours before departure.
Please read carefully all fare restrictions.

Have a pleasant flight!

Paid by Credit Card XXXX-XXXX-XXXX-1234

**You need not to keep air ticket with you as
it is possible to download e-ticket from
anywhere.**

the tickets with them to the airport, but now the system of e-ticket has been introduced in the whole world. The airlines officers getting the information of the passenger from his identity arrange everything for him. The days are ahead when no one will have to carry the passport for travelling. The information of a person can be searched out from the database by taking the finger print or scanning the retina of his eyes.

Another important use of network is to share the required software of information technology. Once it was necessary to keep the required software separately in every computer. Now it is unnecessary to keep software either in the main computer or in a server, and the other computer users can use that software kept in the server. Thus, a user can use software for free or subscribing a minimum charge. In this way, a user can keep his personal files of information in a different location. He can use it from anywhere of the world. Dropbox is the name of such a popular service, and this book is written by using dropbox.



Scanning finger print

Home page of Dropbox

Group Activity

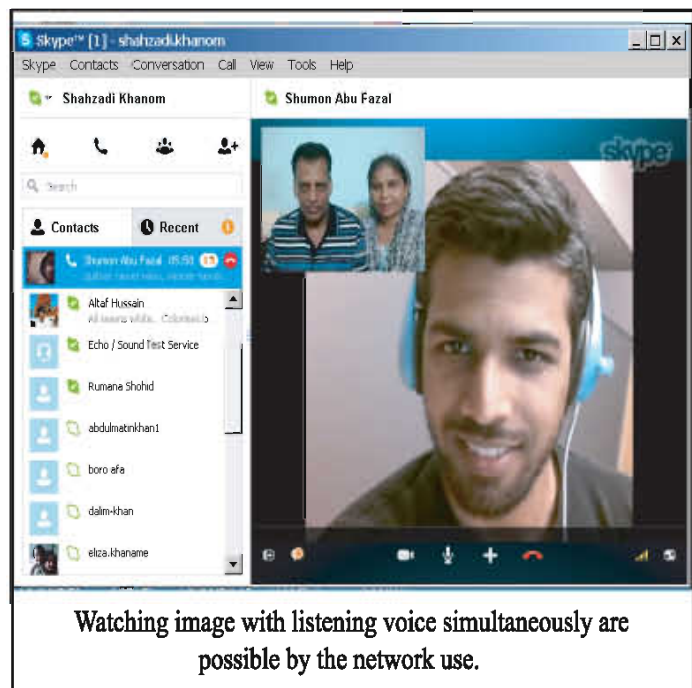
Write the use of five networks that are not mentioned here.

Vocabulary: e-ticket, Retina scan, dropbox.

Lesson 11: Use of Network

Networking of ICT resources is a new concept in sharing information. Usually it is called 'Cloud Computing'. An organisation has to purchase hardware, server, etc. to have services of information technology. Experts should be appointed, and expensive and complicated software are bought for the skillful use of server. Thus, the organisation can get proper service from information technology. Sometimes, an organisation requires a temporary service, but it has to expend a lot and go through a process to have it. The information technology devices are being upgraded so fast that its value falls within a few years after purchasing, and the organisation suffers financial loss.

A new kind of service called 'Cloud Computing' has come into being in the field of information technology. The idea behind it is very simple. Either a user or an organisation receives any kind of service from computer-service-disseminating organisation by using network. Here the organisation will arrange everything for him. If the user's need is temporary, he will use it for a certain time and pay the charge for the service.



This concept has been popular and the use of cloud computing is gradually increasing. The technology of sending email by hotmail, yahoo or gmail is a part of cloud computing, even searching any information by using the Bangla search engine 'pipilika' is a part of cloud computing.

A new trend of communication through social network has been started by using network. Photos, videos, information, emails, etc. can be sent or exchanged through the network. Now facebook and twitter are on the top of all social networks.



বিশ্ব উদ্যোগ :  

The Bangla search engine 'Pipilika' is now operating with the help of cloud computing.

You can make phone calls by using network. Now it is possible to watch the person on the other side of the telephone. In offices, the processing and exchanging of files are done fast and skillfully by using network.

Network plays a very vital role in entertaining the people. Once, either people had to go to the cinema hall or to purchase a CD for watching a movie, but now they can download the film directly from the network. The use of network has added a new dimension to the world of entertainment.

Network is used in running the state, in security and warfare. Information is the asset in this changed world. He, who is able to use information skillfully, will be the most powerful in this world. Certainly, we will notice its use in the new fields.

Group Activity

Make a list of facilities one can avail using network

Vocabulary: Cloud computing, hotmail, yahoo, gmail, facebook, twitter

Lesson 12: Network Related Devices

In Class VI and VII, you have known the names of many information and communication technology oriented devices. Now you will be familiar with some other devices.

Hub:

Hub is used to connect a number of ICT machines, that is, computers, printers to a cable network. Hub offers the facility to connect a device with others. All the computers connected by the hub to the same network can contact one with other. Hub means either the Internet hub or networking hub, but nowadays, we notice USB hub too.

When either data or information is transferred from one computer to another, the hub can not read it. While transferring a piece of information, the hub sends it to all the computers connected to it, even to the computer from which it is sent. It means that the hub can not send it to any particular destination. Currently, the use of hub is gradually decreasing as it is not fast and it can not provide maximum facilities.



Hub and USB hub

Switch

It is a tiny ICT device like the hub. Now switch is frequently used to create a network. The main difference between a hub and a switch is that a switch connected to a wire can identify every node separately, but the hub can not. So, any node of a network created by switch can directly contact the other. The node connected to the switch can send data or information to the desired destination.



Switch

How does the switch do the work?

Switch allocates a different address for every node connected to it and exchanges data or information to the addresses, that is, switch transfers data from one address to another whenever necessary. It is called Media Access Control (MAC) address according to the terminology of information and communication technology. Switch works faster than the hub for using separate address. That is why, switch is the most popular device for creating network.



Router

Router

The word 'Router' originated from 'Route'. It is an important device which is the combination of both hardware and software. It is used to create network. The Internet is made of numerous networks. Router is used to connect two active networks under the same protocol (It will be discussed in details in the higher class). A huge number of routers are active in the Internet now.

The main job of the router is to show the route of data or information. Suppose someone wants to send a photo to a friend staying in Australia. The image, after being divided into several data packets, will reach the friend's computer through the Internet. The address of destination is linked in every data packet. As the Internet is globally extended like a web, the data packet can reach the destination through different routes. When a data packet reaches a router, it gives the direction how it can reach the destination easily and quickly.

An example will clear the matter to you. Suppose you want to visit a country by air, but there is no direct flight from Bangladesh. What will you do then? The airlines company will take you to a convenient country from where you will get the connecting flight to reach your destination. Have you understood the nature of working by the router?

Group Activity

Show the differences among the hub, switch and router.

Vocabulary: Hub, USB hub, Node, Switch, MAC Address, Router, Protocol, Data packet

Lesson 13: Network Related Some More Devices

Modem

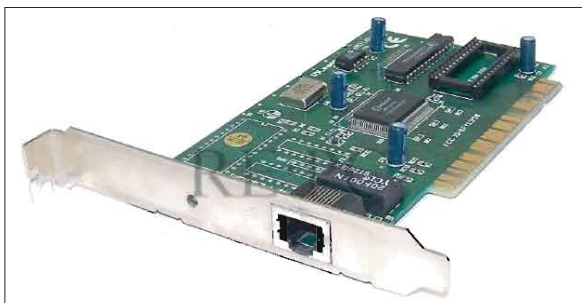
The most important device of being connected to the internet especially through telephone line is modem. The word 'Modem' originated from 'Mo' of modulator and 'Dem' of demodulator. It can be used either through cable connection or by wireless technology.

Some signal is required for sending data or information through the Internet. Modem is such a network device that transforms the signals received from the computer and sends to the network. Similarly, it transforms the signals received from the network sends to computer.

Ealier 100 speed dial-up modem was used. Now instead a high speed cable or DSL (Digital Subscriber's Line) modem is used. Besides, Wi-Fi (Wireless Fidelity) modem is used in a great number.



Modem



LAN Card with cable

LAN Card

The device that is necessary for connecting two or more number of computers together is LAN card, that is, if we want to create any network, LAN Card is a must. It is necessary for exchanging data or information from one node to another. The role of the LAN card is of an interpreter.

Now almost in the computers and laptops of all brands and in nodes, LAN card remains in-built. Besides, in some nodes, LAN cards are connected externally. Due to technological advancement, wireless LAN card is a very popular device now,



Group Work

Discuss the problems of cable connecting LAN card and the advantages of wireless LAN card in groups and represent accordingly.

Vocabulary: Modem, Modulator, Demodulator, DSL modem, Wi-Fi modem, LAN card, Interpreter

Lesson 14: Satellite and Optical Fibre

You know that network is not restricted to an organisation or not limited to a city or a country. It has spread out to the whole world, that is, a signal reaches from any place of the world to another place. If the distance is near, it can be sent through the electric wires, but when it is necessary to send the signal from one place to the farthest corner of the world, satellite or optical fibre is the most effective way.



The floating Communication Satellite on space

Satellite

Satellite moves round the earth while floating on the space. As it moves for the gravitation, no fuel or energy is spent to keep it moving on space. The earth makes a complete circle through its own orbit by 24 hours. If it is possible to make the satellite move round the earth, it will be thought from the earth that it remains motionless in a place in the sky. This satellite is called the geo-stationary satellite. It can not be placed in any height. It should be placed in a certain orbit at least about 36 thousand kilometers high from the ground. Once a geo-stationary satellite is sent to the space, signals from one corner of the world are sent there and the satellite resends it to the other corner. Thus, signals can be sent through the radio, telephone, mobile phone and the Internet. When a geo stationary satellite was set up on the space in 1964, a new era was opened in the field of communication.

There are two kinds of problems in sending information through satellite. As the satellite stays far above the world, high antennas are needed to send signals

there. The second problem is a different one. The signal sent from the earth is a wireless signal, and though it moves as fast as light, it takes some time to cross the long distance. That is why, in telephone conversation, the speech is not heard instantly, it is received a bit later.

Optical Fibre

Optical fiber is a kind of thin plastic glass. Light signal is sent through the optical fibre as electrical signal is sent through electric wire. There might be a question, how is light signal sent through the optical fiber? By this time you have already learnt the infrared light. Through this infrared light, light signal is sent through optical fibre.

First, electric signal is transformed into light signal. Then, the light signal is sent through optical fibre. On the other side, light signal is transferred to electric signal. In this way signal can be sent through optical fibre.

It is possible to send a large number of signals through optical fibres. You will be surprised to know that thousands of telephone calls can be sent just through a single optical fibre.



Optical Fibre



The name of the submarine cable through which Bangladesh is connected to the outer world is SEA-ME-WE-4

Nowadays communication through optical fibre has been so developed that all the countries of the world are connected to each other through the network of optical fibre. Most of the time, the fibre is taken from one continent to another under the seawater. It is called submarine cable.

The satellite signal can move fast like the highest velocity of light. When it moves through the optical fibre, the velocity decreases one-third. In spite of that, the signal can be sent from one part to the farthest corner of the world very quickly through optical fibre. Because the signal need not return from the satellite staying about 36 thousand kilometers up in the space.

Group Activity

Which one between the satellite and optical fibre is more effective? Arrange a debate on the issue.

Vocabulary: Geo stationary Infrared.

Sample Questions:

1. In which topology a computer is connected to two more computers?
 - a. Mesh topology
 - b. Ring topology
 - c. Star topology
 - d. Tree topology
2. In which topology every computer is connected to each other?
 - a. Mesh topology
 - b. Ring topology
 - c. Star topology
 - d. Tree topology
3. What is the asset of the new world?
 - a. Information
 - b. Data
 - c. Computer
 - d. The Internet
4. The work of network interface card is_
 - i. Giving information to clients after receiving it from the media;
 - ii. Giving information to network after receiving from clients;
 - iii. Imparting numerous services to computer;

Which one is correct?

- a. i & ii
- b. i & iii
- c. ii & iii
- d. i, ii & iii

Read the text below, and answer the question nos. 5 & 6:

Mr. Karim preserves his academic certificates, National ID card and the attested copy of the driving licence etc. in his dropbox. Once he was attending a seminar in London. He got a chance of higher education when the seminar was going on. He had to submit the certificates, and he did it very easily.

5. How did Mr. Karim get the certificates?
 - a. Through postal delivery;
 - b. Through fax;
 - c. By using computer;
 - d. By using the Internet;
6. The advantage of using dropbox is_
 - i. that it can be opened anywhere;
 - ii. that information are safe and secured here;
 - iii. that it can be carried on CD;

Which one is correct?

- a. i & ii
- b. i & iii
- c. ii & iii
- d. i, ii & iii

7. Recommend a topology with rational networking ten computers and a printer in your school.
8. Describe how a router works.
9. State, the process of transferring data through optical fibre.

Third Chapter

Safe and Ethical Use of Information and Communication Technology



After reading this chapter, we will be able to :

1. explain the importance of safe use of devices;
2. explain the importance of the ethical use of information and communication technology;
3. explain the importance of ICT to eradicate corruption;
4. learn the application of protecting documents by using password;
5. use the devices of ICT without any risk;
6. explain the right to information.

Lesson 15: The Idea of Security

You have already come to know that information technology plays a very vital role in our daily life, in running the state and keeping the security. We should take the help of ICT to make our life beautiful, easy and efficient. Now no one is isolated from other for a widespread global network. In one sense, everyone is related to each other. It is a unique creation, but it creates a new kind of risk.

As people are connected to the network, some unscrupulous persons try to enter the territory where he should not. They try to get the information kept secret. Those who have created the network try their level best so that no one can get any unethical access to any information. Every computer or network has its own security measures, and the owners want their sites not to be visited by others breaking the security wall. The invisible security wall is called the firewall. In spite of tight security measures, devious people entering other users' personal sites, watch, make copy and sometimes destroy their information. It is called hacking, and those who hack called hackers. A hacker hacked the networks of the organisations like Dell, Yahoo, Amazon, e-bay, CNN, etc. in 2000, and damaged the asset worth about \$ 100 crore.

Password is used to ensure security while passing through the network. The password is given in such a secret way that no one can guess anything. But a special kind of computer or robot has already been invented to know the password. All the time they try to know the passwords of other users by using all possible passwords as long as they do not get the right one. That is why, nowadays, even after entering the right password the user does not get the access. He has to type some deformed letters that he can easily understand, but a machine or a robot can not do that. This process to differ a man and a machine is called 'captcha'.



These letters are written in such a way that only man will recognise it, but a robot will not understand. It is called 'Captcha'.

As the time passes, we have been relying more and more on information technology and network. If this network stops for a moment for some reason, a catastrophe will grip the earth. The world will fall into an uncontrollable situation. That is why all the

possible measures are taken to keep the network active. The big storehouse of information is called 'Data centre'. Measures are taken to protect it from mechanical disorder, damage by fire, earthquake, and criminal attack.

A different kind of insecurity is developing in the Internet in an alarming rate, and we do not have a clear idea about it. Nowadays, we rely on the Internet for all kinds of information, but all what we receive is not true. Somebody either knowingly or unknowingly confuses people by giving misinformation. There are numerous instances of propagating wrong information for political gain. So, justify patiently before accepting any information from the Internet.



Einstein and Zillard are seen in the photograph of the extreme left, but the head of scientist Satyan Bose has superimposed on the shoulder of Zillard on the right, and it is kept in the Internet. If people do not know of the genuine picture, they could be confused.

Group Activity

Describe by guessing what kind of catastrophe will befall on earth if the network fails.

Vocabulary: Firewall, Hacking, Hacker, captcha.

Lesson 16: Malicious Software

Any work in computer is done through programming. Usually computer has two types of programmes or cluster of programmes. One of the programmes is the operating system software and the other is application software. Main function of system software is to retain the computer hardware in a usable condition so that the application software can make it function properly. Mostly the special kind of job is done with the application software and we are very much familiar with these software. Office management software (Microsoft Office or Open Office or Libre Office), database software (Oracle or Mysql), website browser (Mozilla Firefox or Google Chrome), etc. are the software of that kind. When a piece of software works, some parts of it are stored in the primary memory of the computer and the rest of the parts do other works by the operating system.

But it is possible to write programming codes that can interrupt the smooth functions of the software, destroy the software interface of hardware, or damage the computer. As these programming codes or programmes are harmful for computers, they are called 'Malicious software', in brief 'malware'. They disrupt the usual functions of both the operating system software and the application software. Some malware not only impede the functions but also steal or erase information from the hardware of the computer. Sometimes, it enters the system secretly without the knowledge of the computer user. It can be exposed like programming code, script, active file, software, etc. The common names of all harmful software that enter the computer and damage it is malware.

Computer virus, Worm, Trojan horses, Rootkits, Killgar, Dialer, Spyware, Adware, etc. are included in malware group. Our experience says that the number of Trojan horses and worms of malicious software is larger than that of computer viruses. Though the grooming and exposing of malware is strictly prohibited under the cyber act in different countries, its creation has not been stopped. Computer users try to protect their computers by using anti-virus. At the very beginning, it was created on a whim. The first internet-worm called 'Morris worm' was also created whimsically, but many dishonest programmers create malware with ill intentions.

How does Malware Work?

There is a possibility of attack by malware in the computers where the security system of software is faulty. It is possible to create malware and make the software malfunctioning if there is fault in the design of the software too. Of

the operating systems running currently in the world, the malware of windows operating system is larger in number than that of the other operating system. One of the reasons is that most of the computer users use windows operating system, but no one is aware of its danger. If any fault is detected in operation, malware is created by picking up the fault. The malware was small in number before the explosive progress of the Internet. When it was made possible to spread malware through the Internet, the number of malware is increasing in an alarming rate.

Types of Malware

The following are the most common of identified malware:

- a. Computer virus
- b. Computer worm
- c. Trojan horse

The emphasis is given not on the difference of nature but on the difference of contagious factors between computer virus and worm. Computer virus is such a kind of malware that attaches itself with an executable file, and when the computer user runs that file, the virus attacks other executable files automatically. When it is spread out on the Internet, it is transmitted to other computers, that is, it can not be spread out without the interference of the users. For example, if a pen drive contains any virus-infected file, it can not be active and spread out as long as it is not connected to other computers. On the other hand, worm, being active, automatically spreads out from network to network and attacks the computers.

The target of the malware becomes successful when it is not identified as malware. That is why a malware hides its identity under the guise of useful software. The users use it confidently and damage their computers. This is the way of working by the Trojan horse. When the disguised software becomes active, the Trojan corrupts the files and imports new Trojans.

Group Activity

Discuss in group why malware should not be created.

Vocabulary: Programming code, Malware, Worm, Trojan horses, Rootkit, Killgar, Dialer, Spyware, Adware, Morisworm, Executable File

Lesson 17: Computer Virus

Computer virus is a kind of malicious software or malware that can be multiple and transmitted from one computer to another. It is a common misconception that virus includes all kinds of malware though spyware and adware do not have any power of reproduction. Computer virus damages the system in various ways. Reducing of speed, the problem of hanging on and rebooting are visible damages. Most of the viruses damage the system without the knowledge of the users. Some viruses do not damage the system; just draw the attention of the users. A virus called CIH being active on 26 April every year formats the hard disk. Now it remains inactive



The History of Virus

Before writing about computer virus programme in 1949, scientist John Von Newman focused light on it. The idea of virus programme came from his concept of reproductive programme. Then it was not called virus. American computer scientist Fredrick B Cohen first named this type of programme 'Virus' for its reproductive strength. A virus programme can make its own copy. In the 70s, at ARPANET, the elementary stage of the Internet, a virus called creeper virus was detected. Then a software named 'Reaper' was created to kill the creeper virus. At that time, the virus where it was born remains fixed.

In 1982, a virus called Elk Cloner started transferring data or programmes from one computer to another through floppy disk drive globally. But the devastating nature of virus was first exposed by a virus named Brain in 1986. Two Pakistani brothers manufactured the programme in Lahore. Since then onward, many viruses are created all over the world. Of the harmful viruses and malicious software, the following are the most dangerous:

Brain, Vienna, Jerusalem, Pingpong, Michael Angelo, Dark Avenger, CIH Anna Kurnikova, Code Red Worm, Nimda, Daprosy Worm, etc.

Types of Virus

Every programme should be able to execute the code and write on memory for

reproduction. As no one will run any virus programme knowingly, it chooses an easy way to reach its goal. The virus successfully attaches its code to the programmes run by the users regularly (for example, writing software), and when the user runs the active file, the virus becomes active too.

The virus can be divided on its nature of working after being active into two types:

Some viruses after being active look for the programmes that are vulnerable and after infecting them leave the control on the main programme and become inactive. These are called non-resident virus. On the other hand, some viruses after being active take a permanent shelter in the memory. When the users run any programme, it infects that one. This virus is called resident virus.

The Way to Get Rid of Malware

The users can get rid of malware by using a special kind of software. These are called anti-virus or anti-malware software. Most of the anti-virus software is proved effective against different malware, but they are called anti-virus software since the very beginning. All the anti-virus software available in the market works effectively against all malware except virus. All the virus-programmes have some specific patterns. Anti-virus software preserves a list of these patterns. The list is prepared after doing extensive research. When anti-virus software works, it finds out the patterns in the files of computer system and compare with the list of patterns of its own. If it finds the similarities, it confirms it as a virus. As most of the viruses infect the active files, taking measure is possible by examining the files. But the main drawback of this system is that if the list is not regularly upgraded, detection of virus becomes tough. So, many anti-virus software examining the nature of all computer programmes try to identify the virus. It has another problem that the software unknown to the anti-virus software is identified as a virus, and it is detrimental. That is why all the anti-virus companies of the world adopt the first system. The popular anti-virus software are Norton, Avast, Panda, Kasperski, Microsoft Security Essential etc.

Group Work

What should be done after virus infection? Discuss in groups and describe.

Lesson 18: Online Identity and Its Safety

The number of the Internet users is increasing as days are passing by. Physical presence is not necessary on the Internet. Listening to the voice over telephone, the identity of the person talking on the other side can be sure, but it is impossible by using the Internet. Most of the users create an identity online. This identity expresses individual on the social networks, blog or website. It is called online identity. Although people use their original names online, some of them like to use pseudonyms. Even, some people use neither real names nor pseudonyms.



Identity Theft

If anybody is recognised by his online identity, he becomes trustworthy, if the identity of the user is not recognised, he is regarded as a suspicious person.

The online identity of a man can be any one of the following or a combined form:

- a. email address;
- b. his profile name on social network;

A user has to try to protect his identity since it does not matter how he has expressed it. So the user should be careful about using the mediums mentioned above to protect his identity on the Internet. He must be vigilant so that nobody can use his email, or facebook account. The secrecy of password to enter the account should strictly be preserved and it is mandatory. Some tips/techniques are given below to protect the secrecy of password:

1. Use long password instead of short one. Favourite sentence can be used if necessary;
2. Both the capital and small letters can be used instead of using either capital or small letters;
3. Use strong password. Create password with word, sentence, number and symbol; For example, Z26a1sa1rl8al@gmail.com
4. There is a scope to verify the strength of password online. Verify the

strength of password by using the scope, and if it becomes weak, strengthen it;

5. If you use any system run by many people (as Cyber cafe, Union Information and Service Centre), log out before leaving the place;
6. Use password manager, such as, lastpass, keepass, etc. as many users use;
7. Develop the practice of changing password;

Computer Hacking

Hacking means getting into any computer system or network without the permission of the concerning authority or the users. Those who do this work are called hackers .

A hacker hacks other's computers for numerous reasons. Among these to earn illegally, harming a person, organization humiliation or disturbing security etc. Sometimes hacking is used to protest or challenge. But some computer security experts do not like to call them hackers. They like to call them crackers though they are recognised as hackers through out the world.



The hacker community has divided themselves into different groups: white hat hacker, black hat hacker, gray hat hacker, etc. White hat hackers try to find out the loopholes of the security measures of a system. They are called 'Ethical Hackers'. On the other hand, black hat hackers get into the system for a dishonest purpose.

Hacker

In different countries of the world, it is regarded as a crime. In Bangladesh, it is also a crime. According to the Information and Communication Technology Act 2006 (Amendment 2009), the offence of hacking carries a 3-7 years imprisonment.

Group Work

Discuss in groups and describe the difference among the malware, virus and hacking.

Vocabulary: Hacking, Hacker, Ethical hacker.

Lesson 19: Cyber Crime

A very painful incident occurred in Bangladesh on 30 September 2012. In the dead of night, a large number of Buddhist temples set on fire. Some unscrupulous people did it by provoking others capitalizing communal sentiment. At least 3 people were killed and 15 others injured when a bomb exploded in Boston Marathon on 15 April 2013.



An alarming news was published on 9 June 2011 in The New York Times in which it was reported that the credit card numbers and the secret information of thousands of people had been leaked out, and the security of their deposit was on the face of threat.

A powerful bomb exploded after the Boston Marathon

The three incidents are supposed to be different, but cyber crime was the provocative factor behind every incident. A corrosive picture was sent through the Internet to provoke the communal sentiment among people to destroy the Buddhist temple. The criminals learnt staying at home how to create a bomb getting instructions through internet. The hackers hacked the database of a bank to leak out the numbers of credit cards. We enjoy numerous advantages from information technology and internet. Similarly, a new kind of crime called cyber crime has come into being. These crimes are done by using ICT, and the criminals find out new ways to commit crimes. Some traditional cyber crime are:

INVESTMENT BANKING | JUNE 9, 2011, 5:41 AM | 75 Comments

Citi Says Credit Card Customers' Data Was Hacked

BY CHRIS V. NICHOLSON AND EPIC DASH

12:49 p.m. | Updated Citigroup acknowledged on Thursday that unidentified hackers had breached its security and gained access to the data of hundreds of thousands of its credit card customers in North America.

"During routine monitoring, we recently discovered unauthorized access to Citi's account online," the bank said in an e-mailed statement. "We are contacting customers whose information was impacted."

The bank said about 1 percent of its North American credit card holders had been affected, putting the total count of customers exposed in the hundreds of thousands, based on its annual report for 2010, which said it had about 21 million credit card customers in North America.



A New York Times news shows that Credit Card Customers' Data of Citi Bank has gone to the criminals' custody

Spam

Those who use email are more or less attacked by this cyber crime. Spam is unwanted, unnecessary, and pernicious email sent to a user's mailbox continuously. Time and money is spent to take measure against the spam attacks.

Deceiving: A major part of a cyber crime is deceiving. Using fake identity and giving a piece of wrong information, they try to deceive people. For example, the announcing of huge financial offer through Email.

Disclosing Objectionable Information: Sometimes objectionable information of a man is spread out in the Internet either for rivalry, or to have political gain, or for any dishonest intention. It is possible to stop it if it can be done by using any responsible organisation, but most of the time it is done concealing the identity, and in that case, it becomes tough to stop it. Popular Internet service like facebook and youtube were kept closed in our country for the time being for spreading hatred through corrosive news.

Threatening:

By using the social networking sites, an unscrupulous person can harass somebody. On the Internet, as nobody come face to face, a person can easily threat another person.

Cyber Battle:

The personal conflict among people can take a crucial turn. A group or community or a country being organised can proclaim battle against another group, community or country. It happened against political parties of different ideology or ideal, and thus the cyber rules are violated.

Still people do not know how to resist cyber crime. Only a few days ago, decision has been started taking about the nature of punishment on the gravity of crime.

Group Activity

Design a poster to strengthen publicity against cyber crime.

Vocabulary: Spam, Credit Card, Cyber battle

All are trying their level best to minimize this widespread corruption, and information technology has become a powerful weapon to fight against corruption.

Corruption is done in a secret way because no society encourages it. Information technology has made the easy access of information. So if corruption is done anywhere, it is instantly revealed to everyone. It is now impossible to run an office keeping records only in black and white. The total system of preserving and processing data should be brought under information technology. When ICT is used to run an institution, it simultaneously works to eradicate corruption and reveals to the people. If any suspicious transaction is done, the information goes to the database and revealed to others for transparency.

A special portal is made in Bangladesh to call e-tender

Every country follows a specific rule of expenditure. As per the conventional rules and according to the requisitions of an office or organisation, works are done by calling tenders in the newspaper. The interested groups drop tenders mentioning the estimation and the concerned office picks the group that submits the lowest quotation. Once the corrupted and influential organisations would interfere and impede others to drop tenders and forcefully possess the work. Nowadays the total process is completed through e-tender, and as people without going to office and facing anybody submit every detail through information network, the scope of corruption is minimized.

People in our country produce anything to sell, can not directly reach the consumers. The brokers purchase the products from the producers in a cheap rate and sell out in a high rate to the consumers. Thus, the producers do not get the reasonable price and the consumers are cheated as well. Now the producers can directly sell their products to the consumers for ICT and the Internet without the interference of the brokers. Now no showroom or shop is necessary for selling products, even no storehouse is necessary for storing the products. Thus, both the producers and consumers have benefit and do not suffer a loss of money.

The producers can directly sell their products, even vegetable to the consumers

Many powerful countries and organisations of the world do injustice to different countries or wage war on them and put the innocent people in catastrophe. They are enforced to suffer a lot. The whimsical decision of an autocrat or a dishonest state chief works behind it. Once, people did not have the strength or courage to raise voice against them. Now many organisations reveal the information they got through the Internet though still there is a debate whether it supports the law or not. In spite of that, people come to know how heinous crimes are committed by the states.

Group Activity

A dishonest man is caught by using ICT. Stage a drama on the issue.

Vocabulary: e-tendering, e-commerce

Lesson 21: Right to Information and the Right to Information Act

When data is processed after obtaining from different sources, it becomes information. Individuals, organisations, government and non-government establishments, etc. always create information. The right to know the information related to government and non-government establishments and important for the people is the right to information. It has been acknowledged as legal right in 93 countries of the world till 2013. That is why the Right to Information Act has been enacted in these countries and implemented as well. The Right to Information Act has been in force in Bangladesh since 2009. In this act, getting information is regarded as the prerequisite of individual freedom of thought, speech and conscience.

In the Right to Information Act, information means the structure, formation, official memorandum, book, design, map, contract, letter, statement, accounts, project proposal, photograph, audio, video, sketch, film, electronic instrument, machine-readable document, infrastructure, and other informative things and objects of any establishment. But in every country, some pieces of information are kept outside the purview of the act, for example, it is the right of a citizen to know the information of the number of teachers, students, tuition fees of an educational institution, but it is not anybody's right to know anything about the probable questions of any examination.

Every organisation throughout the world is bound to allow anybody to reveal the information. If the act is violated, the responsible persons are sure to receive punishment. An information commission is formed to monitor the implementation of the act in the countries where it is operative. There is a commission like this in Bangladesh (www.infocom.gov.bd). The commission works as a guardian and if anybody fails to get any information, he can lodge a complaint to the commission.



Sample Questions:

1. Which one is a malicious software?
 - a. Microsoft word
 - b. Trojan horse
 - c. Google chrome
 - d. Mozilla firefox
2. The ethical hackers are-
 - a. Black hat hacker
 - b. White hat hacker
 - c. Blue hat hacker
 - d. Gray hat hacker
3. For the security of password, we should-
 - i. use long password;
 - ii. use complicated password;
 - iii. change password regularly;

Which one is correct?

- a. i & ii
- b. i & iii
- c. ii & iii
- d. i, ii & iii

Read the writing below, and answer the question nos. 4 & 5:

Some sample passwords:

- a. rakib.
- b. baBualAmin1985
- c. Shaymol
- d. Piku2014

4. Which password is the most useful according to your text book?
 - i. a
 - ii. b
 - iii. c
 - iv. d
5. If any password is used except the useful one-
 - i. the others can easily know it;
 - ii. secrecy may be revealed;
 - iii. it may be difficult to remember the password;

Which one is correct?

- a. i & ii
- b. i & iii
- c. ii & iii
- d. i, ii & iii

6. What will you do if your computer is virus attacked?
7. Write five advantages of using password.
8. Information and communication technology can play a vital role in erradicating corruption—explain it.
9. Which works are considered as cyber crime?

Fourth Chapter

Use of Spreadsheet



After reading this chapter, we will be able to :

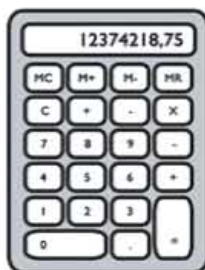
1. explain the relationship between the Information Technology and Spreadsheet;
2. identify the fields of using spreadsheet;
3. explain the objectives of using spreadsheet software;
4. describe the technique of using spreadsheet software;

Lesson 22: Spreadsheet

Human beings have been keeping accounts since the primitive age. They would keep it by using symbols either on stones or on the bark of trees. The invention of abacus is the result of this attempt. Paper and ink were the only means of keeping the accounts before 50 years. The invention of calculator gives human beings the advantage of calculating, but the problem of complicated and big calculation persisted. These problems are removed after the invention of computer.



Abacus



Calculator



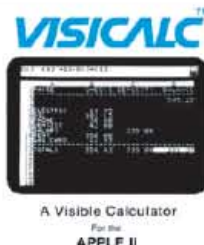
Computer

Concept of Spreadsheet

The lexicographic meaning of spreadsheet is a paper big in size and spread. This sheet is used to keep the accounts of business firms. Making a table, the total picture of accounts is preserved, but now the software based spreadsheet programme has replaced paper-based spreadsheet. Thus, the use of spreadsheet becomes popular.

In the late 70s, the Apple Company at first invented the spreadsheet software called 'VisiCalc'. After that Software called Microsoft excel, Open office Calc, Kspread were devised. Now the most popular and extensively used spreadsheet software is Microsoft excel.

The icons of different Spreadsheet software



Excel



Open office calc.

What is Spreadsheet Programme?

Spreadsheet is a kind of application computer programme. It is sometimes called 'workbook'. As a register book has numerous pages, so a workbook has numerous worksheets. A worksheet has many rows and columns. It looks like the picture given below:

	A	B	C	D	E	F	G	H
1								
2								
3								

Columns and rows are numbered by A, B, C... and 1, 2, 3... respectively. The squares are called the cells.

Spreadsheet and ICT

This age is the age of information and communication technology. Data processing is a very important job today. The data collected for any research work or for using any business-purpose requires analysis to present in a comprehensive way. The primary analysis of data can be done with the help of spreadsheet programme.

In a worksheet of the spreadsheet programme, data entry of all kinds is possible. So an enormous volume of data can be edited, calculated, and analysed, and effective report can be prepared.

Objectives of Using Spreadsheet Software

Case Study 1. A big register was used to prepare the result of term test of 'Natan Kuri High School'. The teachers would write down the obtained marks of the students against their names or roll numbers, and calculate the subject wise grade points, they would finally sum up the GPA. Errors were made in this process, and they had to correct it when detected. They required some days to complete the whole process.

Case Study 2. 'SR Enterprise' is a business organisation that makes a huge transaction everyday. Some of it is done on cash, some on credit. The cashier undergoes troubles to keep the accounts.

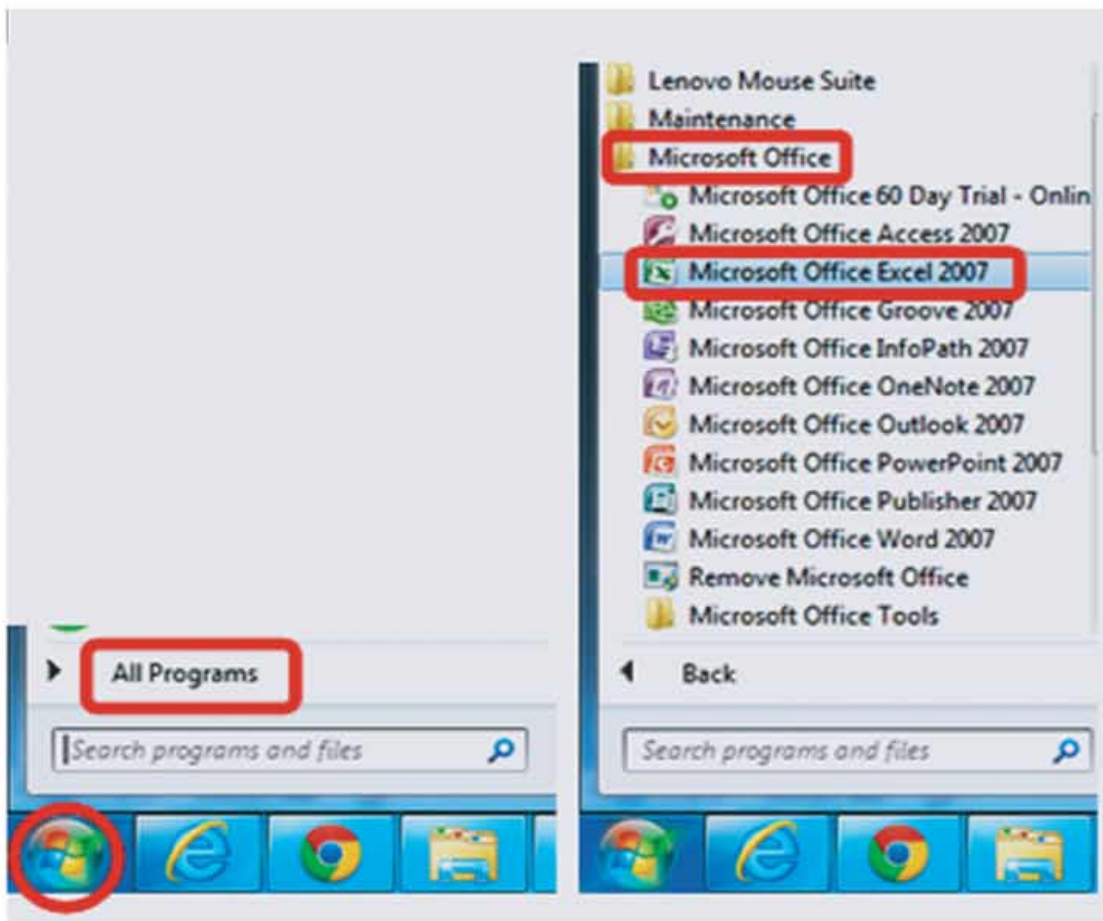
Case Study 3. Mr. Suman always tries to live within his means. He keeps the records of income and expenditure, but sometimes, he makes discrepancies.



In the above case studies the problems faced by individuals and the business organisations can be solved by using the spreadsheet. A huge amount of data can easily be handled in the spreadsheet software, and the calculation can be done unerring. As there is a scope of using formula in this software, the calculation is automatically done. As the same formula can frequently be used, it requires minimum time to process the data. Showing figures of data in this software is easy too. The management and preservation of postal and email address is easy in the spreadsheet.

Lesson 23-43: The Technique of Using Spreadsheet Software

In the previous class, you learnt how to open word processing software. The system of opening spreadsheet is the same. In a running computer, click the start button and go to All Programmes, and then click the icon of the spreadsheet programme.

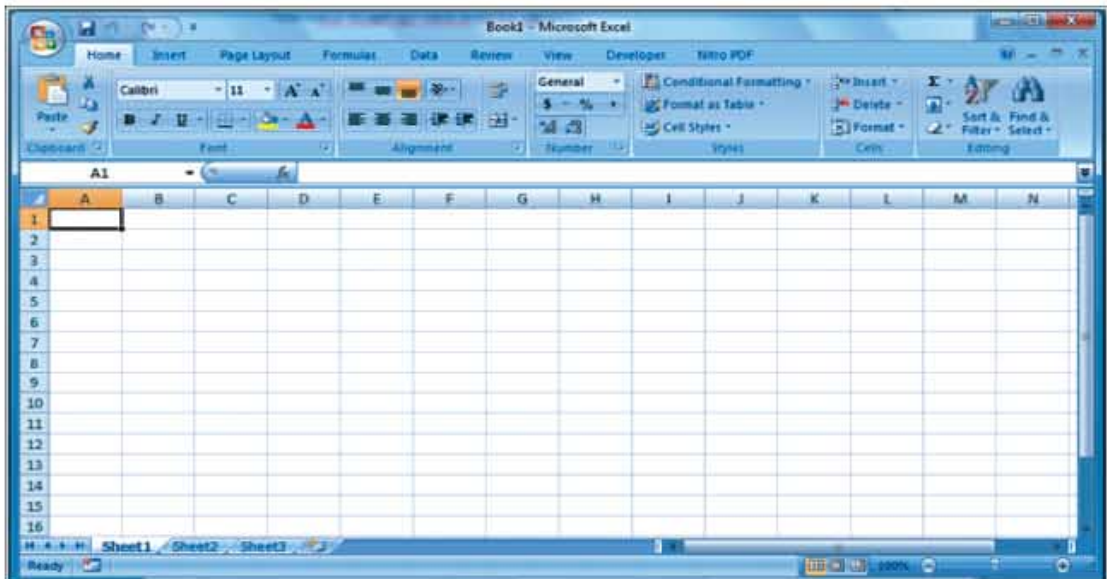
The system of opening spreadsheet software of Microsoft excel is shown below:



Besides, the spreadsheet programme can be opened from the desktop by clicking double on the icon of spreadsheet programme  or on .

Microsoft Excel 2007 Window

Microsoft Excel 2007 programme is seen when opened:




Title Bar



The title of the workbook is written on the top of the Excel Window. It is called title bar.

Office Button

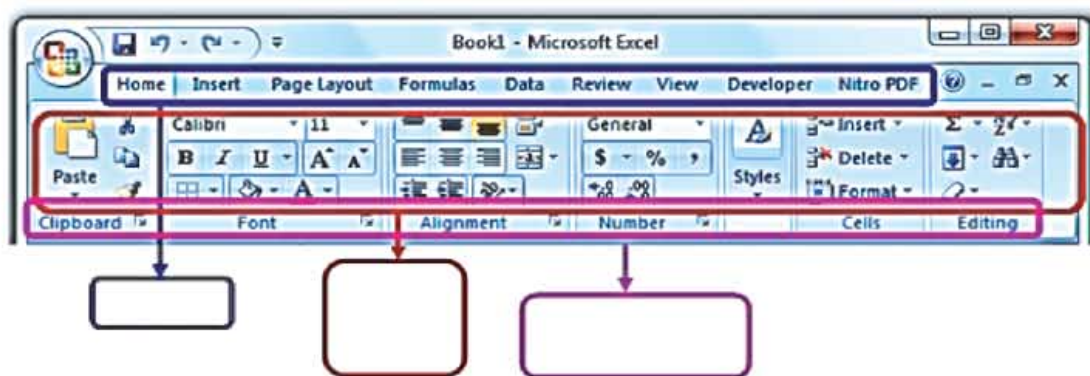
The button  at the left corner on the top of Excel Window is called the office button. New Excel workbook, previous workbook can be opened, and workbook can be preserved by clicking the button.

Quick Access Toolbar

The position of quick access toolbar is next to office button. The buttons used most remain here.



Ribbon



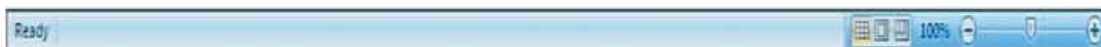
Different commands are arranged in cluster in Microsoft Excel. These are called 'Ribbon' together. These commands are arranged with icons under every menu.

Bar or Formula Bar to Show the Positioning of Cells and the Items of Cell



Its position is below the ribbon. The positioning of cell or the reference to cell is shown along with the items and contents here.

Status Bar



The positioning of status bar is below the worksheet. The status of different works while doing it is projected on the bar. Besides, the option of seeing worksheet in different process remains at the left side of the status bar.

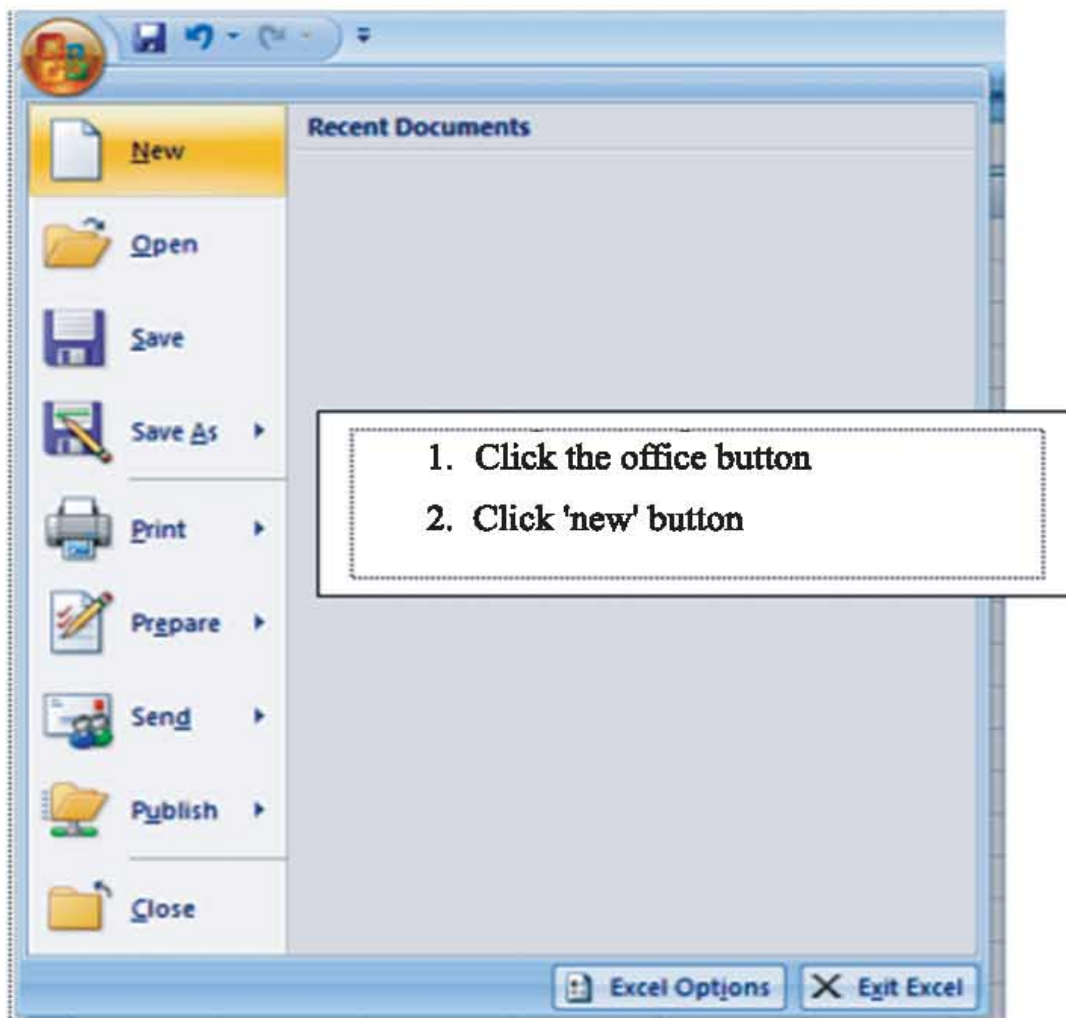
Sheet Tab



The sheet tab shows the number of worksheets in a workbook. It is used to move to different sheet tab.

The System of Opening New Worksheet

The system of opening new worksheet, when the excel is open, is shown below:

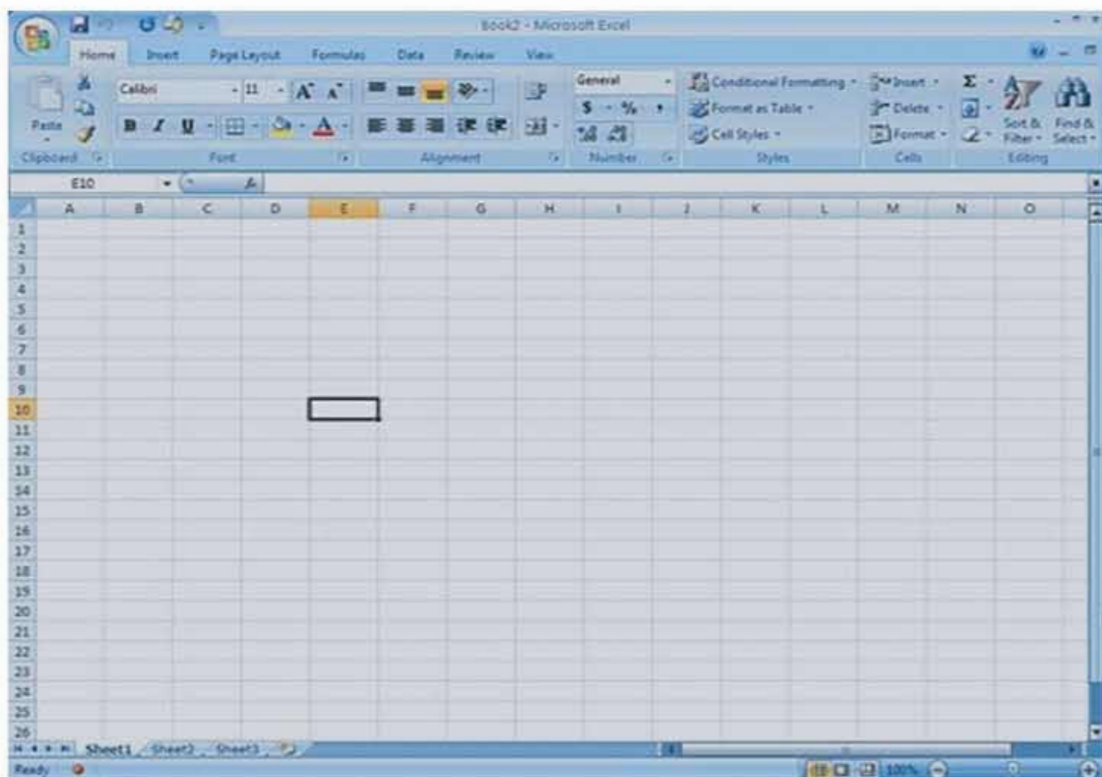


The new worksheet can be opened through keyboard by pressing Ctrl+n too.

The Technique of Using New Spreadsheet software:

We have already known that the grid of worksheet remains in spreadsheet as the column and row. The title of every column and the row is indicated with English alphabets and numerical figures respectively. So, the address of or the reference to every cell in the grid remains separate and specific as well. For example, by E10 the column number E and the cell positioned on the severing point the row number 10 are indicated.

Let us enter data to the spreadsheet software.



In the figure the position of E10 Cell is shown.

Take the cursor in any of the cells and type letters or numbers pressing keyboard. The using of spreadsheet starts. We can take the cursor on any cell of the worksheet by moving the arrow key. The cursor can be taken to any cell by clicking the mouse.

C2			
	A	B	C
1			
2		Name	Age
3		Wakim	11
4		Bina	7
5		Mahir	7
6			

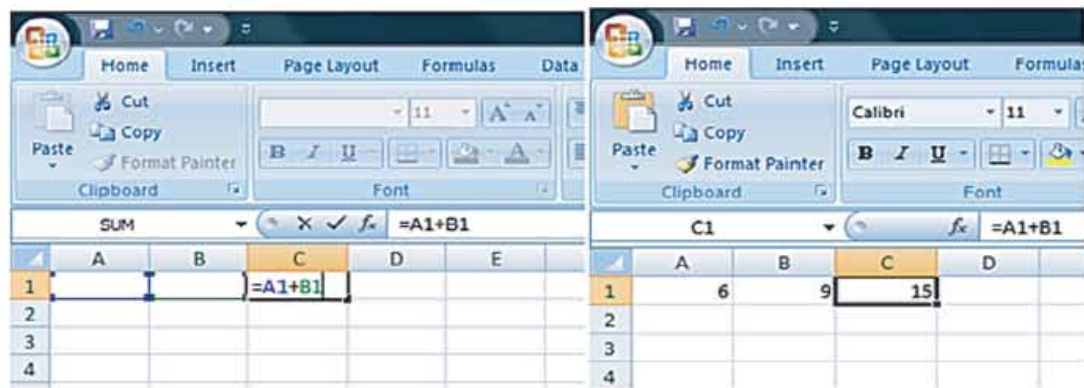
Khokon scored 70 in Bangla first paper, 40 in the second paper, 70 in English first paper, 30 in second paper and 45 in Information and Communication Technology. Type this information by using spreadsheet software.

Arithmetical Functions in Spreadsheet Programme

Different kinds of Mathematical calculations can successfully be done by using spreadsheet. We will know how to do sum and subtraction by using Excel programme.

Sum

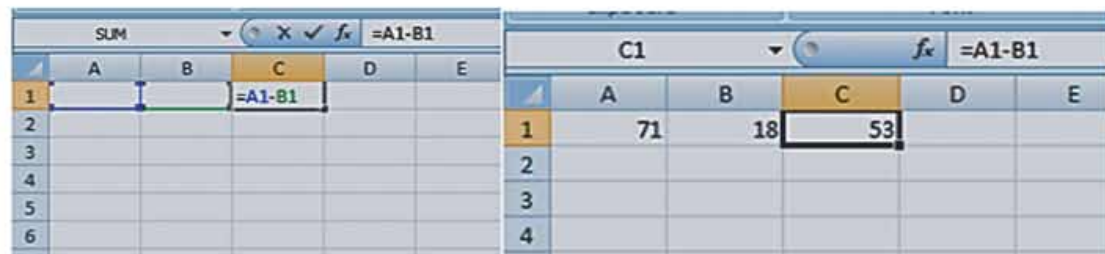
Sum is done in two ways: automatically and manually. For both the calculations, taking the cursor in the cell of result, click Σ AutoSum . For manual summation, write = sign and formula in the result cell. In the picture below it has been shown.



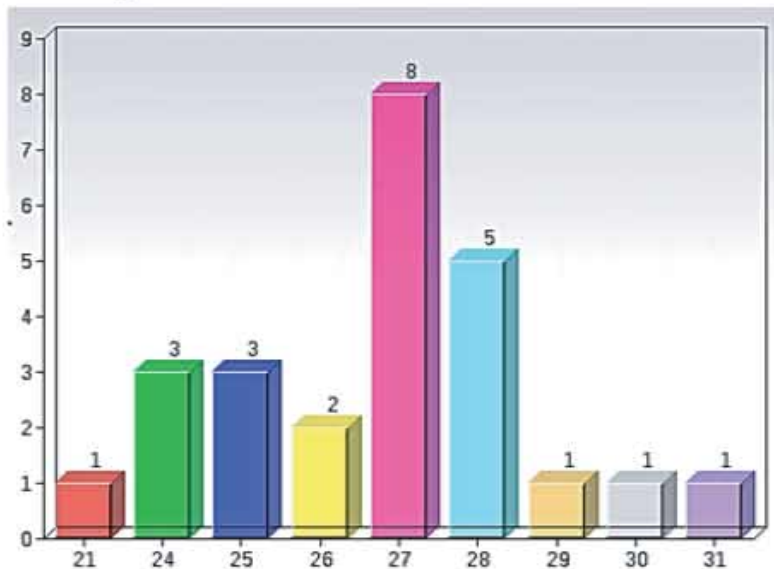
Besides, applying formula, we can get summation. By indicating cell range, it is shown how many cells will be included for summation here: =Sum(A1:D1) It means- the summation of data of A1, B1, C1, and D1

Subtraction

The subtraction process in Excel worksheet is like the summation process, but there is no way of auto-subtraction. So putting formula in the result cell, subtraction can be done. In the picture the system of subtraction has been shown.



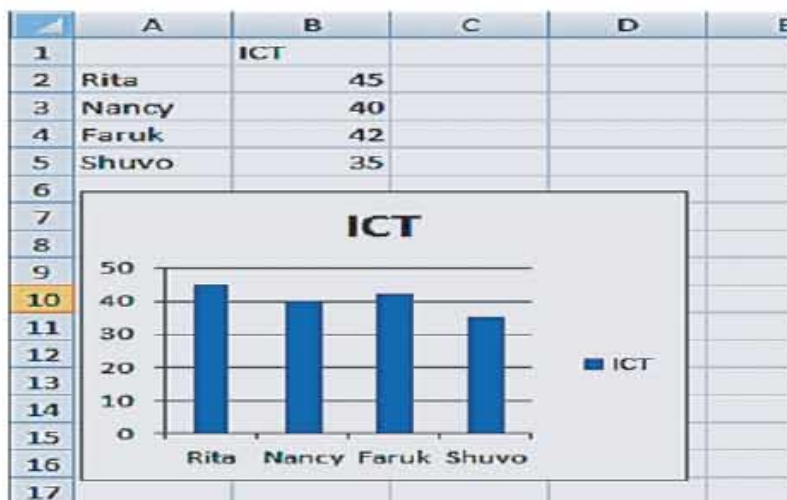
Drawing Bar Diagram



Information presented with bar diagram

The following process should be followed to draw bar diagram:

1. Enter data in worksheet;
2. At first click insert on ribbon, then column in chart option;



You will know in details in the next class.

Sample Questions:

1. Which one is the first spreadsheet software?
 - a. Microsoft Excel
 - b. VisiCalc
 - c. Open office Calc
 - d. Kspread
2. The workbook cannot be used -
 - a. to prepare the result sheet of school exam;
 - b. to keep the accounts of business;
 - c. to make medical diagnosis;
 - d. to keep scores of a cricket match;
3. In which cluster the commands of Microsoft excel are arranged?
 - a. Quick Toolbar
 - b. Menu Bar
 - c. Ribbon
 - d. Status Bar
4. The invention of spreadsheet in ICT_
 - i. has made keeping accounts easy;
 - ii. has made new scope for worker-management;
 - iii. has made possible to do many works staying at home;

Which one is correct?

- a. i
- b. i & iii
- c. ii & iii
- d. i, ii & iii

Read the text below, and answer the question nos. 5 & 6:

The result of JSC

- ♦ 10 students of Girabo Primary School have obtained GPA5;
 - ♦ 15 students of Dirai Primary School have obtained GPA5;
 - ♦ 5 students of Nalam Primary School have obtained GPA5;
 - ♦ 18 students of Palash Primary School have obtained GPA5;
5. Which option of Excel is advantageous to make the comparative study of results of these schools?
 - a. Table
 - b. Chart
 - c. Formula
 - d. Filter
 6. By using Microsoft Excel_
 - i. the total number of students got GPA5 can be calculated;
 - ii. the percentage of students got GPA5 can be calculated;
 - iii. the total number of students can be calculated;

Which one is correct?

- a. i
- b. i & iii
- c. ii & iii
- d. i, ii & iii

7. Why do you think the use of spreadsheet is effective in preserving and publishing exam result?
8. How is addition or subtraction easier in spreadsheet?
9. Write, the strategies of using spread sheet.

Fifth Chapter

Use of the Internet in Education and Daily Life



After reading this chapter, we will be able to :

1. explain the importance of the internet in education;
2. evaluate the importance of internet in daily life;
3. communicate with the classmates opening an email account;
4. use the internet to solve the problems of daily life;

Lesson 44: Use of the Internet in Daily life

'In which work of our daily life we can use the internet?' 'Once we used to ask people, but with the advancement of information technology, the scenario has been changed in such a way that we may ask the reversed question whether the internet can be used in all the affairs of daily life or not.



A Smartphone

Previously, desktop computer big in size was needed for using the internet. Gradually, it becomes smaller and takes the shape of Laptop, and after that, it becomes netbook and tab/pad being more smaller. Now a Smartphone is enough to serve all the purposes. Now the Smartphones are so cheap that anyone can buy one. He can keep it in his pocket and can stay connected with the internet in every moment. Not only that, most of the institutions provide people with wireless internet service that is known as Wi-Fi. Thus in most of the times, we receive the internet service. The countries far away from advanced technology cannot move a second without constant communication with the internet. We are rapidly approaching the direction.

There are immense use of the internet in our daily life. We just give you some examples. Usually we begin our day with the newspaper. Now-a-days all the newspapers are available in the internet. So, a reader can get all the information of the day reading online version without going through the printed version of newspaper. In the past, a reader would read only one or two newspapers, but now it is possible for him to read all the newspapers.



The driver is driving the car watching the location on GPS device attached to it.

Besides, we would listen to radio or watch television, but now it is internet-oriented. We can enjoy any programmes of radio and television through the internet. When we come out of home to begin the day, we get information on the way from the internet. Global Positioning System or GPS can show us our locations accurately, and this device is attached to every Smartphone. So, we get the instruction of the way to be taken, or the locations of institutions through the internet. Almost in all the cars of new model, GPS system is kept attached to provide the facilities.

In our workplace, the use of the internet depends on the nature of our job. More or less everyone uses the internet, but we can hardly find any person who is not dependent on the internet. At least, we have to send and receive emails. It does not make any difference whether the email comes from the next door or from the farthest corner of the world through the internet.



It is possible to read e-book like the printed version by using the tablet.

When we come back home after finishing the outside works, the use of the internet in daily life starts in a new way. Once we could only talk on telephone, but for the increase of bandwidth on the internet, we are not satisfied with talking communication only, we can watch the person who we are talking to. Once, when someone would go abroad, handwritten letter was the only mode of communication.

Now, it becomes very trendy to watch the person while talking on the internet. Entertainment plays a vital role in making the daily life cheerful. This entertainment is unimaginable without the internet. All kinds of books are now available as e-book format on the internet, and anyone can have the quick access to it staying at home. Not only books but also music and movies can easily be downloaded from the internet. If the bandwidth is of high frequency, download is not required, direct watching and listening of music and movies can be possible. Many people love to play computer games for entertainment. The use of the internet adds a new dimension to playing video games.

Regarding popularity, the maximum use of the internet in our daily life is done through social networking. They exchange views, photographs, videos with each other or initiates a discussion.

The internet has be influenced us in every way. So if it is disconnected , we feel very helpless

Now-a-days, the young generation wastes their time so much keepaing themselves engaged in social network (facebook for example). But they must not forget that there are many other entertainment in real world like sports, friends and relatives. That is, they should know it very well that there is really a world other than cyber world.

Group activity:

Write the diary of a person who uses the internet.

Vocabulary: Wi-Fi, facebook, e-book, Bandwidth.

Lesson 45: Influence of the Internet in Education Life

As the internet has a tremendous influence on all spheres of our life, it is not surprising that it has a deep impact on education. Those who read in schools may already have noticed it. The internet is extensively used for preparing the book you are reading right now. Not only that, this book and other text books are kept in the website of the NCTB. If your book gets lost anyway, you can easily download it for your own use from the website of the NCTB.



This website is specially prepared for downloading e-books.

The internet has an extensive use in the education sector of our country. You, after finishing your JSC examination, will get the results directly from the internet. The internet is also used for admission purpose. The information of different schools and colleges can be elicited from the internet which is also used for running a lot of schools of the country.

Besides managing the education system, the internet contributes a lot to the development of education. If you fail to understand a certain point of your textbook, you can seek help from the internet where you will definitely get information of that subject. If you do not get information for some reasons, you may ask questions to somebody concerned. Any individual or group having access to the internet may answer your question. Previously, questions were to be written in English for searching answer in the internet and all the information were in English. Now things have been changed. In our country, a Bangla search engine named 'Pipilika' is currently available on the internet. If you require, you can easily search your information on the internet writing in Bangla. The information bank in Bangla on the internet should be enriched to exchange information in our mother tongue. The process is gradually developing.

In education, specially in science education, we need to carry out experiments on different fields. In many cases, a virtual display of how it can be carried out is

possible. It is not possible to develop such experimental jobs by the effort of an individual or an organisation. But as the rich information bank has been developed on the internet by collective effort, the scientific experiment which was impossible for you to carry out earlier can offer you the idea and confidence to do it.



A girl is asking questions from the earth to an astronaut staying at the space station

You need not confine yourselves within your classroom or within the teachers of your schools for the blessings of the internet. Now-a-days many exciting courses are offered on the internet, and anybody can take any of these courses. The internet does not offer courses only for the students of schools, colleges and universities. There is a space station in the vast endless sky. The school students can request the astronauts to make any experiment in the weightless atmosphere of the space. The astronauts show that experiment with pleasure and ease. The students in the world can learn something new watching their works. So, you can comprehend that the internet has extended its web to the space surpassing the limit of the earth.

Now we are accustomed to reading the printed version of books that will be very soon replaced by e-books. All the books of the world will be preserved as e-book format in the internet, and anyone will easily download it in his e-book reader. Once a man had to be satisfied only with the book he could carry. But now, with the blessings of the internet, human beings can choose to communicate with necessary books at any moment. It may sound unbelievable that you can store not only a book but also a complete library in your pocket if you require.

Group Activity

Make a list of things to build an e-book club at your school.

Vocabulary: search engine, space station.

Lesson 46: The Role of the Internet in Solving Every Day Problem

Story1: Sakib's father felt sick in the dead of night some days back. Sakib's mother even after undergoing much toil can not communicate with anybody in that night. Suddenly, an ambulance appeared at the door of their house. When asked, Sakib informed his inquisitive mother that she, collecting the phone number of that hospital from the internet and gave an emergency call for their ambulance service. That is why they are here. That time, Sakib's father was saved from any critical damage of health as was borne to the hospital in time.

Story2: Sufia goes to Singapore with her parents on a holiday. All on a sudden, her father had to admit to a hospital being injured in an accident. She required a lot of blood for his recovery. Sufia posted a status through her facebook profile that her father is in the urgent need of blood. Many Bengali people living in Singapore coming to know the incident stood beside them and managed the blood.

The above two incidents describe the successful use of the internet in solving the problems of our daily life. Eventually, both the incidents are health related, but the internet can play an effective role to solve almost all other problems.

The information remains scattered in the internet. All sorts of information including education, health, transport, commerce, research, the structure of government, politics, etc. are available there.

The main weapon of solving problems of daily life is information that can be searched out from the internet, and by using it, we can solve the problem. That is why we should enhance our skill to search out information on the internet. The most popular search engine of the world is google (www.google.com). Information can be searched out in English or Bangla.

The information technologists have created a search engine called 'pipilika' (www.pipilika.com) in Bangla. All kinds of education related information can be searched out here in Bangla. There are numerous websites on the internet to solve the problems of the learners. Besides, a special website called 'wolframalpha'(wolframalpha.com) remains to help the learners calculate unerringly. The solutions of different mathematical problems are also available on this site. Such a website is [www. Khanacademy.com](http://www.Khanacademy.com) from which learners can get necessary information about different subjects.

Numerous internet oriented help centres are set up to solve the problems of the daily life. The internet support centres of the mobile companies of Bangladesh are the best examples of these kinds of help centres. The consumers here get the solutions of mobile phone related problems.

The email oriented service centres are operative throughout the world. Services can be received from these help centres through email.

The adolescents can develop a spontaneous inclination for solving problems

through the internet. Many internet games are created in such a way that a user has to solve many minute problems to win the game. The young learners can develop skill of solving problems by playing these games. It is possible to be related with like-minded community through the different social networks like blog, facebook, etc. It helps to solve many social problems too. A village boy was kidnapped by the depraved. The initiator of local union information and service centre shared the matter in their blog. The matter drew the attention of the local administration, as the officials were the members of the blog, and they immediately taking measures rescued the boy.

The Internet, i.e. information and communication technology helps us to solve the problem in this way.

Group Activity

What kinds of help you would like to get from the internet to solve the problems of daily life? Discuss in groups and describe.

Vocabulary: Internet game, Share in blog

Lesson 47-69: email

The meaning of the email is 'electronic mail' or 'electronic letter'. We can send any writing or photo to any email account through electronic device. Those who have email addresses have mailboxes as well. The email is stored in the mailbox coming from anywhere. The user who holds the mailbox can read the letter by opening anytime.

The most interesting matter is that the sending and reading the letter can be done for free. Now the communication through email has become a very simple matter. Many people of your acquaintance have email accounts. Internet browsing is possible almost in all the Smartphones. So, both sending and receiving emails are possible through the internet. You can send any file attaching with the mail. Different types of files that could be any word document or excel file or image. Nowadays, it is impossible to think on business and trades without email.

It is very easy to send email after opening an email account. We will learn it within very short time. Opening an email account is possible after having a simple practice. If an ICT device is attached to the internet, email accounts can be created for free. It can be sent in a faster mode from one corner of the world to the another corner. It is needless to keep the device open for receiving emails. It is possible to send and read email at any time of 24 hours. One letter can be sent to many accounts. It is also possible to send mails by keeping the secrecy. But some caution is necessary for opening emails. Any unfamiliar suspicious email should not be opened because it may be virus and put your ICT device into danger. So be careful!

Opening email Account:

Let us learn how to open an email account. At first, we have to decide by using which email service provider we will open our email account. There are many websites for opening email. You are familiar with the popular sites of the world, such as, yahoo mail service, gmail service, hot mail service, etc. Many people acquainted with us have email accounts.



Choose your service provider

Now be connected to the internet through computer. Running the browser of your computer, enter the service provider site that you prefer.

After entering every site, we have to sign up for opening a new email account. The system of signing up in all the sites is almost same with a few exceptions. The user has to fill up a form, and it is very easy.

Following the directions of the site, finally click on 'Create account', and thus, your email account is open. Your ID and password should be preserved carefully and secretly, or anybody can enter your account unlawfully.

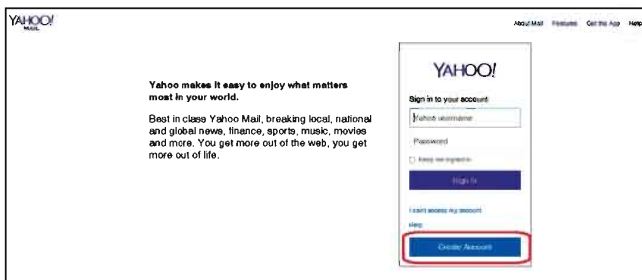
The information required to fill up the form and the system of opening the email are mentioned here. For example, here we have used Yahoo website, but you can use any other website. You have to use English language for opening email account, but you can exchange message in Bangla. We will be gradually accustomed to using it.

What you have to do to open an email account in the popular website yahoo:

1. Go to website of Yahoo : <http://www.yahoo.com>
2. Click on the writing 'mail'



3. Click on the writing 'Create account'



The following devices we must need to open an email:

1. A computer or ICT device
1. The internet connection

This form will be seen on the monitor after clicking on the writing 'Create Account'

4. Fill up the form : All the information should be given in English.

(a) Write the first part of your name in the box written 'First name' and the last part of your name in the box 'Last name'

(b) Write your ID in the box written 'Yahoo username.'

i. You have to start writing your ID with letters. Its length should be 4-32 letters. In the ID letters, numbers, underscore (_) and a dot (.) can be used. Here, you can see the advice of Yahoo. You can accept it if you like.

ii. Keep your ID easy and understandable

iii. Sample of writing Id : Suppose, name of a students is 'Anika'

Anika's Yahoo ID May be : anika_dhaka then Anika's Yahoo mail account will be : anika_dhaka@yahoo.com.

(c) Type the password :

i The length of the password should be limited in 6-32 letters. For password, capital letters and small letters are considered as different letters. The name fo any place, person or yahoo ID should not be used

as password.

- ii To protect your password, use –
 - Letters and numbers;
 - Special character (for example, @);
 - Combination of capital and small letter ;
- iii Do the following works after you have typed the password :
 - Select the country and type your mobile number;
 - Select your date of birth. Here you have to select first the month, then the day and the year in the last.
 - Select the gender
 - Next alternate recovery number should be given.(incase of forgetting the email ID)
 - Select the country and type mobile number
 - Type the relation between you and the user of this mobile number
 - Click on the writing 'Create Account'

Your email account has been created now. But remember to open an email account in the Yahoo this form is not always used. The Yahoo authority very often changes this form for opening an email account.

Now, you have your own email address, haven't you?

Will you send an e-mail now?

Sending an e-mail:

To send an e-mail, you need to browse on the website where your e-mail address is. Now, it is shown how to send an e-mail by using Yahoo mail:

1. First open Yahoo browser site and Click on the writing 'Mail'



2. Write your yahoo ID and password. Then click on the writing: "Sign in"

 A screenshot of the Yahoo sign-in page. It features the Yahoo! logo at the top. Below it, the text 'Sign in to your account' is displayed. There are two input fields: 'Yahoo username' and 'Password'. Below these fields is a checkbox labeled 'Keep me signed in' which is checked. At the bottom of the form is a blue button labeled 'Sign In'.

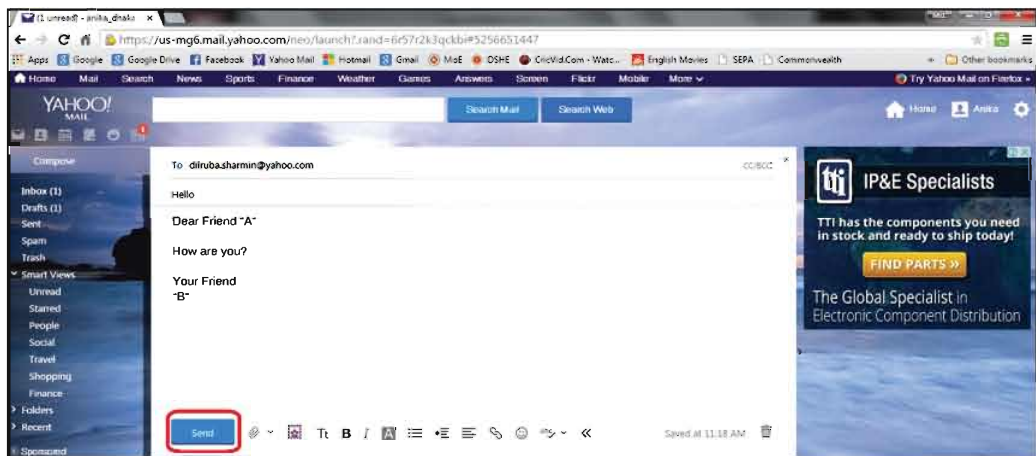
What we must need to send an e-mail:

- A computer or ICT device
- Internet connection
- Email address

3. Now click on the writing 'Compose' with the mouse and wait a bit.



4. Now, beside the writing 'To' write your friend's e-mail address and write something there compose a letters in the blank space.



5. Now, Click on the writing 'Send' and send your email.

Tell your friend to open his/her email address and ask, whether he/she has got your mail or not.

Have you understood everything?

Can you send an email to anyone you like?

Practise the procedure several times. Now, you have learnt to communicate with anyone by e-mail.

How is to Sign out from e-mail account:

1. Put the curser on the right of your email account. Then there comes profile menu

Now, click on the writing “**Sign out**”

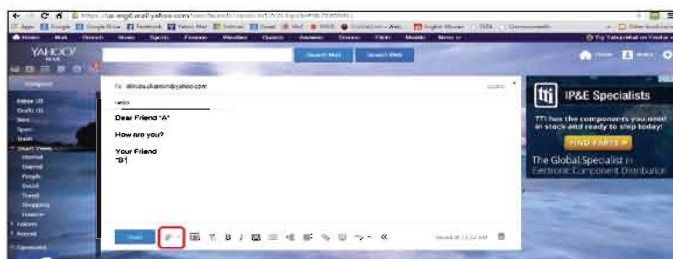


This way of signing out is safe. Your e-mail account will remain safe.

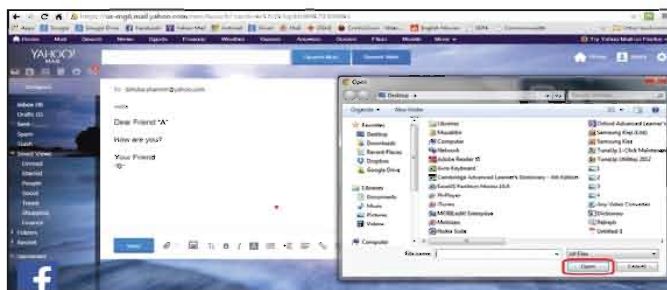
This means, your e-mail account and password will be free from being hacked.

To send the attachment:

We have come to know earlier that any document file, excel file, photo or PDF file etc. can be sent attaching with the email. This work is very easy. Finish writing the email by following the above procedure. Now click on the attachment icon beside ‘send’ button.



The following page will be visible on the screen



Select a file from a location and click the open button, the file will be attached to email. How much time it will take to be attached will depend on the size and the speed of your internet connection. After the completion of the attachment send it following the directions mentioned earlier, and the email will reach the desired destination.

You have learnt the process of attaching files. Practise several times to learn the process.

Sample Questions:

1. Which one is the Bangla search engine?
 - a. Bing
 - b. Google
 - c. Yahoo
 - d. Pipilika
2. What is email?
 - a. Emergency mail
 - b. Electrical mail
 - c. Engineering mail
 - d. Electronic mail
3. To read the online version of newspaper, you need—
 - i. an internet connection;
 - ii. to pay regularly for reading newspaper;
 - iii. to learn browsing the website;

Which one is correct?

- a. i & ii
- b. i & iii
- c. ii & iii
- d. i, ii & iii

Read the text below and answer the question nos. 4 & 5:

Era told her niece Topa, 'you will inform your Daddy that I will send an email attaching a photo at 11pm.' Topa replied, 'Auntie, send the email by 10 am next day. We keep our computer closed after 9 pm.'

4. When should Era send the email?
 - a. At 10 pm
 - b. At 11pm
 - c. At 10 am
 - d. At 11 am
5. Era will send the mail with the photograph—
 - i. by attaching it;
 - ii. by scanning it;
 - iii. by pasting it;

Which one is correct?

- a. i
- b. i & iii
- c. ii & iii
- d. i, ii & iii

6. If you lose your science textbook, how can you get it easily using ICT?
7. Describe how can ICT help you know 'Pluto is not a planet'
8. Analyse the importance of using internet in our daily life.
9. Describe, the process of sending an email.

The End

2018

Academic Year

8-ICT

রূপকল্প ২০২১ বাস্তবায়নে তথ্যপ্রযুক্তির কোনো বিকল্প নেই
—মাননীয় প্রধানমন্ত্রী শেখ হাসিনা

নারী ও শিশু নির্যাতনের ঘটনা ঘটলে প্রতিকার ও প্রতিরোধের জন্য ন্যাশনাল হেল্পলাইন সেন্টারে
১০৯ নম্বর-এ (টোল ফ্রি, ২৪ ঘণ্টা সার্ভিস) ফোন করুন



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